REFRIGERATOR

SIDE BY SIDE

BASIC : RS25H5121**

MODEL NAME : RS25H5121SR, RS25H5121BC, RS25H5121WW, RS25H5111SR, RS25H5111BC, RS25H5111WW, RS25H5113SL

MODEL NAME : RS25H5121SR/AA, RS25H5121BC/AA, RS25H5121WW/AA, RS25H5111SR/AA, RS25H5111BC/AA, RS25H5111WW/AA, RS25H5113SL/ZS, RS25H5113SL/EY

SERVICE GUIDE

REFRIGERATOR

RS25H5121**, RS25H5111**

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WARNING

IMPORTANT SAFETY NOTICE

The service guide is for service men with adequate backgrounds of electrical, electronic, and mechanical experience. Any attempt to repair a major appliance may result in personal injury and property damage. The manufacturer or dealer cannot be responsible for the interpretation of this information.

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Technical Service Guide
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1. PRECAUTIONS (SAFETY WARNINGS)

CAUTION/WARNING SYMBOLS DISPLAYED

Warning	*Indicates that a danger of death or serious injury exists.*
Caution	*Indicates that a risk of personal injury or material damage exists.*

SYMBOLS

	means "Prohibited".
	means "Do not disassemble".
	means "No contact".
	means "The things to be followed".
	means "Power cord should be unplugged from the consent"
	means "Ground to prevent Electric shock".

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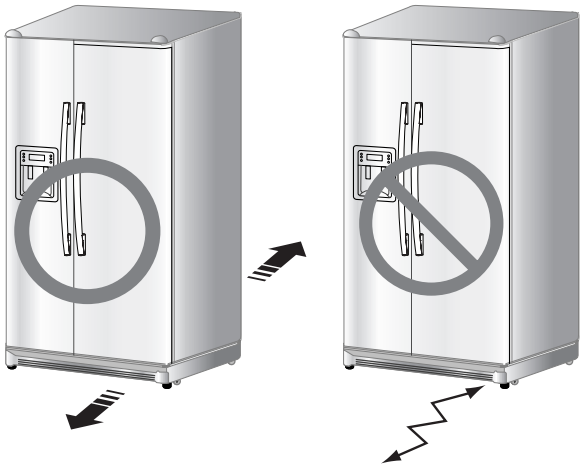
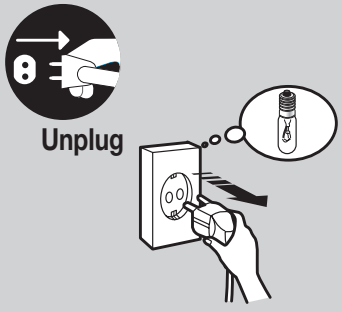
Warning & Caution

CAUTION

When installing, servicing, or cleaning behind the refrigerator, be sure to pull the unit straight out and push back in straight after finishing. Also, make sure your floor supports the full-load refrigerator. Otherwise, it may cause floor damage.



Pull the power plug out before attempting to exchange the interior lamp of the refrigerator.
- *This will prevent danger of electric shock.*



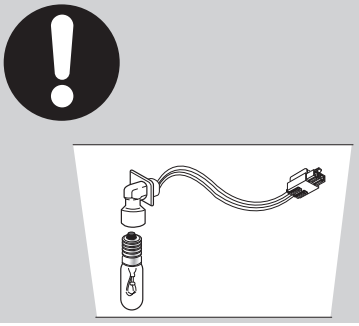
Use only rated components for replacement.
- *Check the correct model, rated voltage, rated current, operating temperature.*

Before repair, make sure that the wires such as harness are bundled tightly.
- *Bundle wires tightly so that they are not detached easily and get wet.*

When repairing, completely remove dust and foreign substances from housing, wiring, joint etc..
- *It may prevents fire due to tracking or short.*

After repair, check the assembled state of components.
- *It must be in the same assembled state as before disassembly.*

Check if there is any trace indicating the permeation of water.
- *If there is that kind of trace, change the related components or do the necessary treatment such as taping using the insulating tape.*



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• *Please let users know following warnings & cautions in detail.*

Warning & Caution

Do not allow users to put bottles or kinds of glass in the freezer.
• *F reezing of the contents may inflict a wound.*

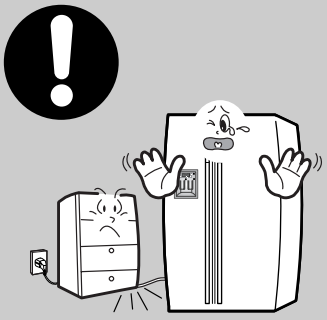
Do not allow users to store narrow and lengthy bottles or foods in a small multi-purpose room.
• *It may hurt you when refrigerator door is opened and closed resulting in falling stuff down.*

Do not allow users to store pharmaceutical products, scientific materials, etc., in the refrigerator.
• *The products which temperature control should not be stored in the refrigerator.*

Do not allow users to insert the power plugs for many products at the same time.
• *May cause abnormal generation of heat or fire.*

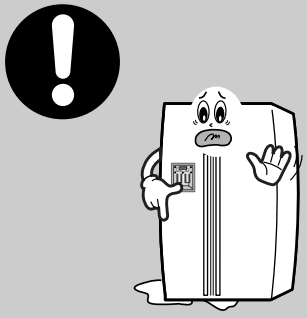
Do not allow users to disassemble, repair or alter.
• *It may cause fire or abnormal operation which leads to injury.*

Do not allow users to bend the power cord with excessive force or do not have the power cord pressed by heavy article.
• *May cause fire.*

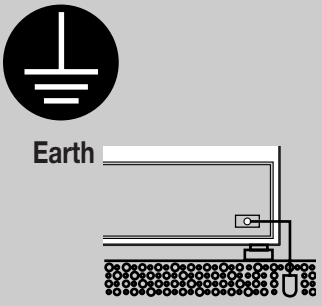


Do not allow users to store articles on the product.
• *Opening or closing the door may cause things to fall down, with may inflict a wound.*

Do not allow users to install the refrigerator in the wet place or the place where water splashes.
• *Deterioration of insulation of electric parts may cause electric shock or fire.*



Make sure of the earth.
• *If earthing is not done, it will cause breakdown and electric shock.*



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2. PRODUCT SPECIFICATIONS

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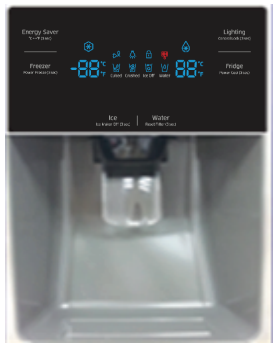
2-1) Introduction of main function

● Major feature

Changed Part		Description	Picture
CABI	Auger Motor	Auger Motor (Auger Mortor Located in CABI)	
DOOR	DISPENSER	New Design Dispenser	

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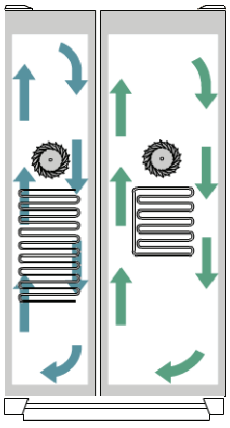
2–2) Model Specifications

NOTE

This operation instruction covers various models. The characteristics of your appliance may differ slightly from those described in this manual.

Key features of your new refrigerator

Your Samsung Side-By-Side Refrigerator comes equipped with many space-saving, innovative storage and energy-efficient features.



- **Twin Cooling Plus™**

  Twin Cooling™, system uses two evaporators to independently control temperature of the refrigerator and freezer compartments maintaining proper humidity levels and preventing odor transfers between compartments.

- **Multi Airflow**

  Provides even cooling throughout the refrigerator to maintain optimal temperatures to keep food fresh.

- **LED Tower Lighting**

  See everything in a new light with LED tower lighting.

- **CoolSelect Zone has three selections.**

  - Fresh : The temp. of the compartment is similar to that of the surrounding refrigerator compartment.
  - Quick Cool : this function can be used to chill quickly beverages.
  - Thaw : this function can be used to defrost foods.

- **Clear View Icemaker**

  The Icemaker is located in the freezer door, this ensures that all the shelf space can be fully utilized. Ice cubes are quickly produced and the clear ice bucket lets you easily see the amount of ice cubes produced.

- **Premium Design Ice & Water Dispenser**

  Quick and easy access to filtered water and cubed/crushed ice at your fingertips with the external dispenser.

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2–3) Specifications

ELECTRICAL SPECIFICATIONS

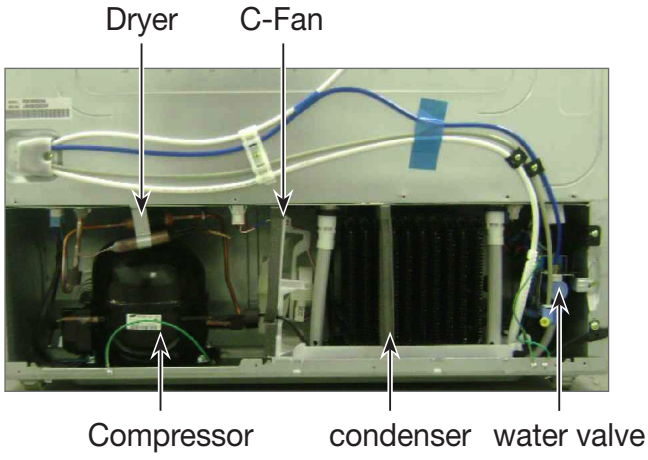
Defrost Control ····· From 12 to 48 hrs
Defrost Thermistor(502AT) ····· 10℃(off)
Electrical Rating H(115V/60Hz) ····· 11.6 Amps
Maximum Current Leakage ····· 0.25 mA
Maximum Ground Path Resistance 0.1 Ohm
Energy Consumption ·····
····· 634 kWh/yr on 2014 standard basis
(is equivalent to 474 kWh/yr on 2013 standard basis)

NO LOAD PERFORMANCE

Ambient Temperature	21℃	32℃
Refrigerator,°C	1~7	1~7
Freezer,°C	-23~-15	-23~-15
Run Time,%	<60(21℃)	<80(32℃)

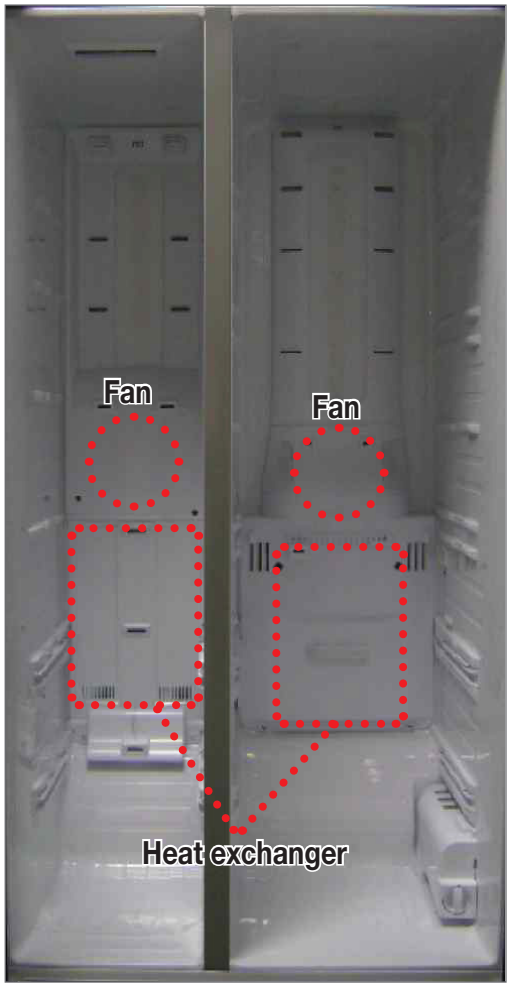
REFRIGERATION SYSTEM

Refrigerant Charge (R134a) ..... 7.76 oz
Compressor ..... 1290 BTU/hr
Compressor oil ..... Freol α 15
Capillary tube(Dia, Length) ..... 0.033 " ,130 "
Dryer ..... Molecular Sieve XH-9



INSTALLATION

Clearance must be provided for air circulation
AT TOP ..... 2"
AT SIDES ..... 2"
AT REAR ..... 2"



MODELS

RS25H51**

REPLACEMENT PARTS

ASSY PCB MAIN DA92-00624*
ASSY PCB SUB INVERTER DA92-00215*
Thermistor(Freezer) DA32-10109W
Thermistor(Freezer Evaporator)... DA32-00029Q
Thermistor(Refrigerator)- DA32-10105U
Thermistor(Refrigerator Evaporator)... DA32-00029Q
Thermistor(Ambient) D-A32-10109B
Thermistor(Ice-Maker) DA32-00060A
SENSOR HUMIDITY DA32-00034B
Overload Relay D-A34-00004D
Fan-Motor(FRE) DA31-00146E
Fan-Motor(REF) D-A31-00146J
Fan-Motor(Circuit) DA31-00146B
Fan-Motor(Box Fan) DA31-00070D

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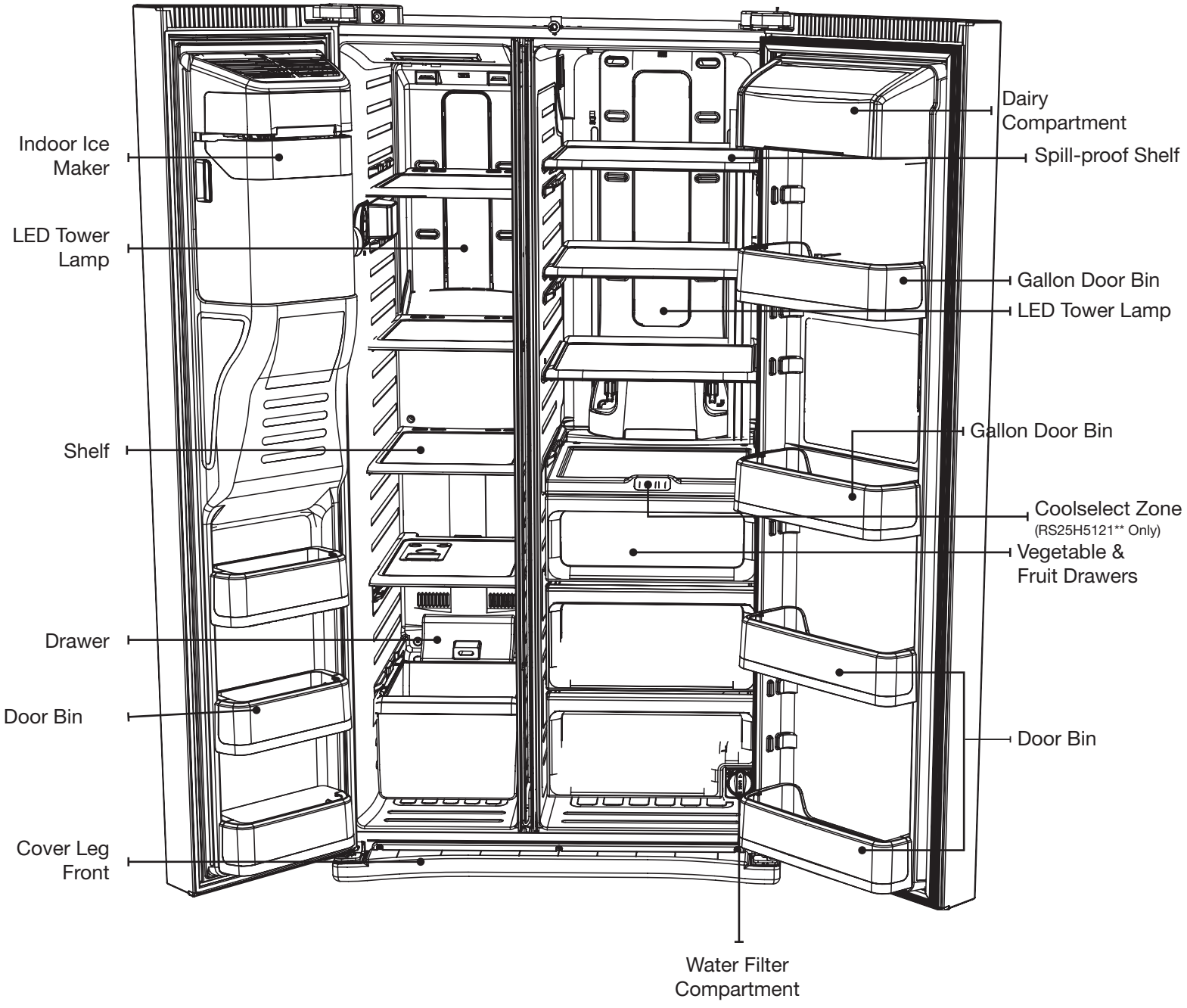
2-4) Interior Views

Freezer



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2–5) Model Specification & Comparison Chart

ITEM		Specification
MODEL		RS25H5121** / RS25H5111
Net Capacity	TOTAL	24.5 cu.ft
	Refrigerator	15.32 cu.ft
	Freezer	9.18 cu.ft
Net Dimension(W x D x H)		36 1/20" x 33 3/4" x 69 15/16"
Rated Input Voltage and Frequenc		AC 115V/60Hz
Motor Rated Consumption Power		80 W
Electric Heater Rated Consumption Power		330 W
Type of Refrigerator		No Frost cooling Refrigerator
Refrigerant		R134a
Refrigerant Input Amount		7.76oz
Product Weight		304.3 lb

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Items				Specification	
Models				RS5121** / RS5111**	
Components for Freezer	Compressor		Model	MKV190CL2B/SM1	
			Starting type	BLDC	
			Oil Charge	FREOL α 15	
	Evaporator		Freezer	SPLIT FIN TYPE	
			Refrigerator	SPLIT FIN TYPE	
	Condenser			Forced and natural convection type	
	Dryer			Molecular sieve XH-9	
	Capillary tube(Dia × Length)			0.033 " × 130 "	
	Refrigerant			R134a	
Room Temperature Sensor Components	Freezer	Model	Temperature Selection	ON(˚F/ ˚C)	OFF(˚F/ ˚C)
		THERMISTOR (F-SENSOR) 502AT	-8 ˚F (-23˚C)	-5˚F (-21˚C)	-11˚F (-24 ˚C)
			0 ˚F (-18˚C)	3˚F (-16˚C)	-3˚F (-19 ˚C)
			5 ˚F (-15˚C)	8˚F (-13˚C)	3˚F (-16 ˚C)
	Refrigerator	Model	Temperature Selection	ON(˚F/ ˚C)	OFF(˚F/ ˚C)
		THERMISTOR (R-SENSOR) 502AT	34 ˚F (1˚C)	38˚F (3˚C)	30˚F (-1 ˚C)
			37 ˚F (3˚C)	41˚F (5˚C)	33˚F (1 ˚C)
			44 ˚F (7˚C)	48˚F (9˚C)	40˚F (5 ˚C)
Defrost Related Components	Defrost Cycle	First Defrost Cycle (Concurrent defrost of F and R)		6hr ± 10min (Comp on integation)	
		Defrost Cycle(FRE)		12~48hrs (vary according to the conditions used)	
		Pause time		10 ± 2 min	
	Defrost Sensor	F Defrost-Sensor	Model	THERMISTOR (502AT)	
			SPEC	5.0kΩ at 25˚C	
		R Defrost-Sensor	Model	THERMISTOR (502AT)	
			SPEC	5.0kΩ at 25˚C	
	Bimetal	Rated		250V/60Hz, 10A	
		Operating temperature		Off : 60± 5˚C, On : 40± 5˚C	

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Items			Specification	
Models			RS25H5121**	RS25H5111**
Electronic Components	Defrost Heater(FRE)	Conducting at F Defrost	AC 120V / 218W	
	Defrost Heater(REF)	Conducting at R Defrost	AC 120V / 140W	
	DISPENSER Heater	Interlock with F-FAN	AC 120V / 6W	
	Water PIPE Heater	Conducting at Water Pipe	AC 120V / 4.6W	
	Ice Maker Heater	Conducting at Ice Maker	AC 120V / 145W	
	Thermal Fuse for preventing Overheating of Refrigerator Defrost-Hearter		AC 120V/15A, 110℃(230˚F)	
	Condenser for COMP	Running	12㎌, 250V	
		Starting	-	
	Over load Relay	Model	4TM445PHBYY-82	
		Temp.ON	266 ± 9˚F	
		Temp.OFF	141.8 ± 16.2˚F	
	Rated Voltage		AC 115V / 60Hz	
	MOTOR-BLDC(FRE)		DC12V, DREP5020LB, 4.8W, 2100rpm, CCW	
	MOTOR-BLDC(REF)		DC12V, DREP5020LD, 2.8W, 1920rpm, CCW	
	MOTOR-BLDC(Circuit)		DC12V, DRCP5030LA, 2.7W, 1550rpm, CCW	
	MOTOR-BLDC(Box Fan)		DC12V, G6015S12B, 1W, 0.07A, 2400rpm, CW	
	MOTOR GEARED I/M INDOOR		AC120V/60Hz, MVCC18AR19, 3.5W, 40mA, CW	
	MOTOR GEARED DISP		AC120V/60Hz, MVCD18AR19, 3.5W, 40mA, CCW	
	MOTOR GEARED AUGER		AC120V/60Hz, ISG-3235SSA, 58W, 12rpm, CW	
	MOTOR DC ICEMAEKR		DC12V, GSP-24RW-011F	
	Lamp(FRE)		DC 12V / 9EA/ 200mA	DC 12V / 9EA/ 200mA
	Lamp(REF)	UPFER	DC 12V / 9EA/ 210mA	DC 12V / 6EA/ 140mA
		LOWER	DC 12V / 3EA/ 65mA	DC 12V / 2EA/ 75mA * 2POINT
	Door Switch		200 VDC / 0.5A	
	Power cord		AC 125V / 10~15A	
	Earth Scerw		BSBN(BRASS SCREW)	

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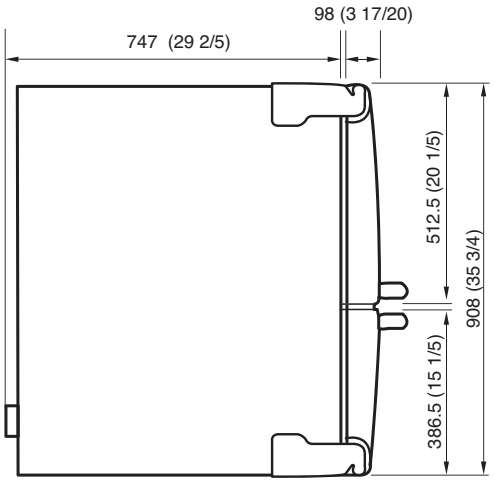
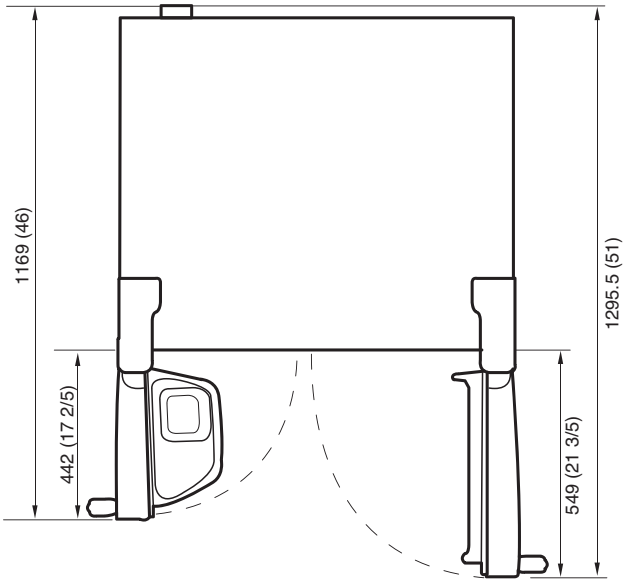
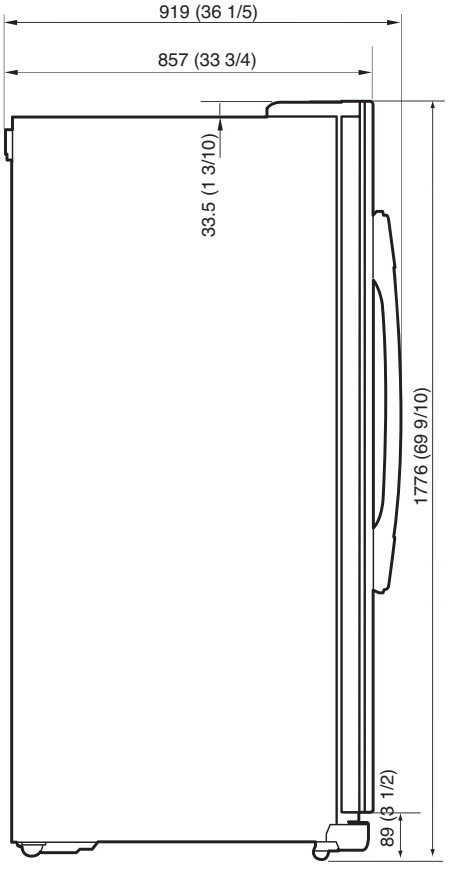
2-6) Dimensions of Refrigerator (Inches)







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2–7) Optional Material Specification

Photograph	Part Name	Part Code
	ASSY PACKING-SUB CLIP-FITTING LOCK BAG PE WRENCH-SPANNER	DA99-03490N DA61-04522A DA69-90113K DA80-00002C

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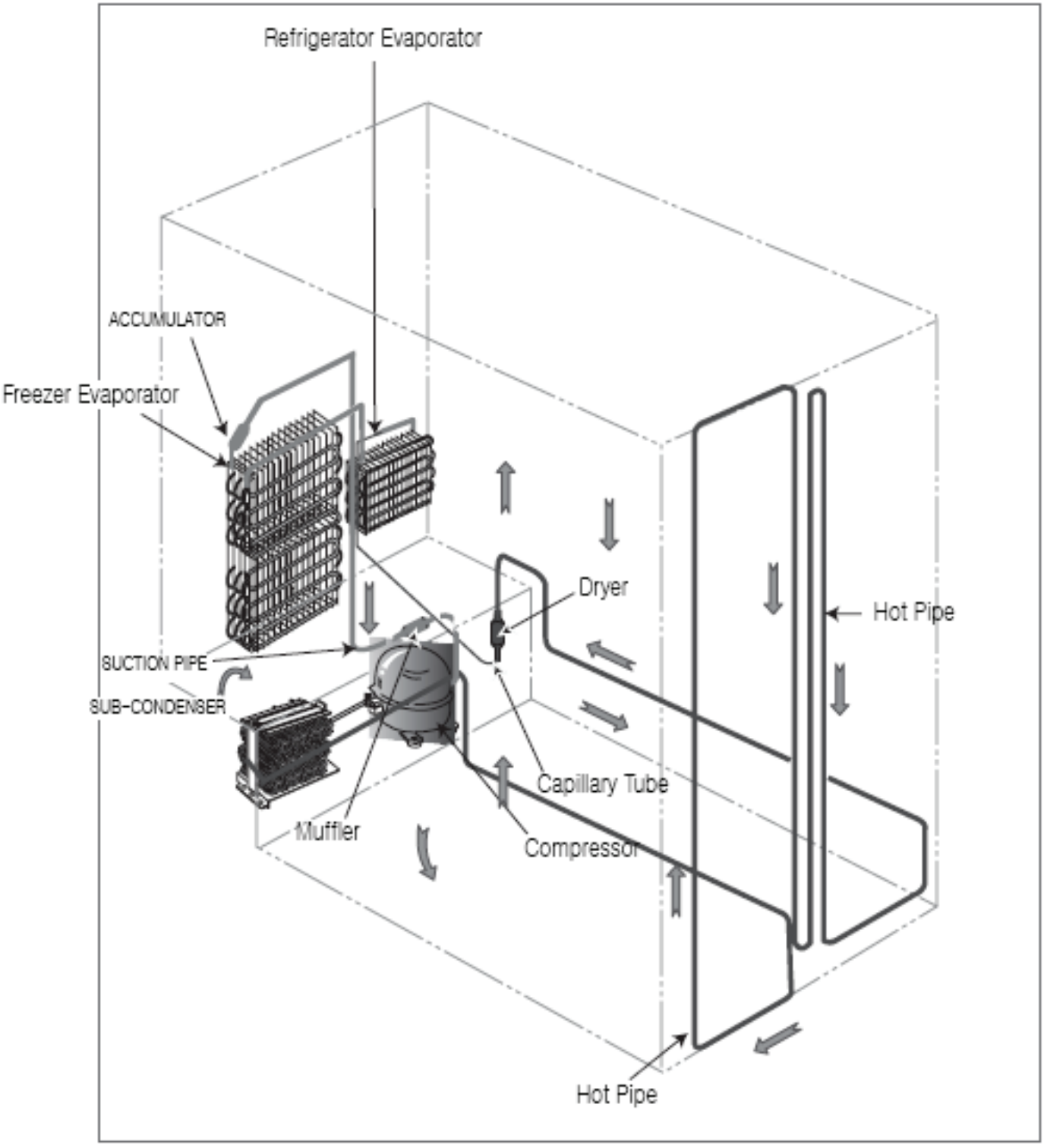
2-8) Refrigerant Route in Refrigeration cycle

Compressor → Condenser → Hot Pipe → Dryer → Capillary Tube → Evaporator → Suction Pipe → Compressor



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3. DISASSEMBLY AND REASSEMBLY

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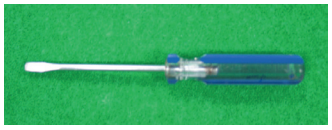
3–1) Caution on disassembly

- When replacing or repairing electric components, unplug power cord before you replace or repair.
  → Be careful of electric shock
- When replacing electric components, use a regular component.
  → Be sure to check the indications like the model number, rating voltage, rating current, operation temperature etc..
- When repairing, the wiring of harness should be free from water infiltration and firm.
  → When applying force, the harness shouldn't be detached.
- When repairing, completely remove dust and foreign substances from housing, wiring, joint etc..
  → Prevents fire due to tracking or short.
- Check if water came into electric components.
  → If there is a sign of water infiltration, replace the component and take necessary action like insulation tapping etc..
- Check the assembly of the component after repairing.
  → Maintain the same status as that before repairing.
- Check the using environment of the refrigerator.
  → If the installation is made unstably or the machine is installed in humid conditions or water, change its location.
- If grounding seems necessary, ground it.
  → If there is risk of short-circuit due to water or humid conditions, be sure to earth.
- Do not plug several devices in one socket.
- Check for breakage, press, scratch, deterioration etc. of power plug and power consent.
  → Immediately repair if the power plug or power consent is defective.
  → When moving the product, be careful not to get scratch or pressed due to surrounding objects.
- Do not store food unstably or do not store bottles in the freezer.
- Do not let consumer repair the machine personally.
- Do not store other materials except food in the refrigerator.
  → Medicine, chemical sample and etc. : Home refrigerator cannot maintain precise temperature.
  → Highly flammable material (alcohol, benzene, ether, LP gas, butane gas etc.) : explosive.

- TOOLS REQUIRED FOR DISASSEMBLY

IMAGE	ITEM
	(+) SCREW DRIVER
	(-) SCREW DRIVER
	(-) SMALL SCREW DRIVER
	SOCKET WRENCH

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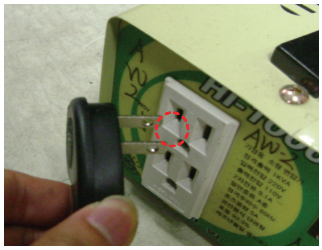
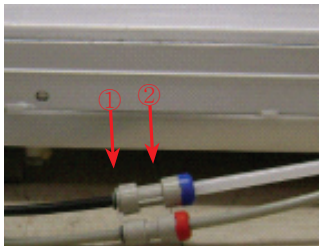
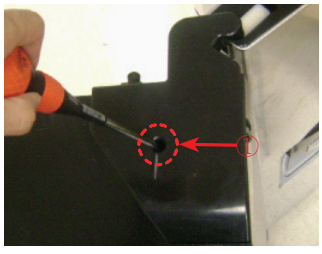
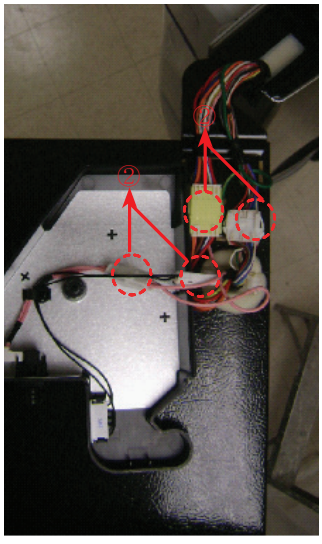
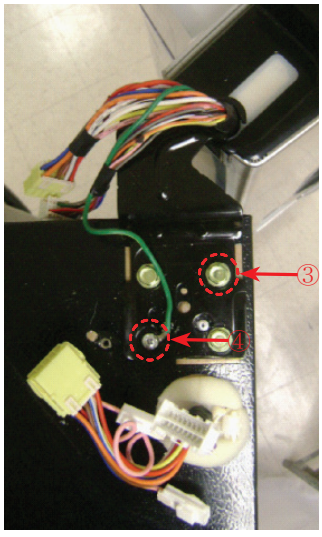
3–2) Freezer Door

Part name	How To Do	Descriptive Picture
Door Freezer	**Removing the Front leg cover.** 1.Open the freezer and refrigerator doors. 2.Take off the front leg cover by turning the three screw counter-clockwise.	
	Removing the Water supply line. 1.Separate the Water Supply Line from the Refrigerator by pressing the coupler(②) 2.pulling the water tube(①)away. Caution If a red clip is on the coupler, it must be removed before removing the tube.	
	Removing the Upper hinge. 1.With the door closed,remove the upper hinge cover(①)using a screwdriver. 2.Disconnect the wires(②). 3.Remove hinge screws(③)and ground screw(④)counter-clockwise and take off the upper hinge(⑤)along the arrow. Caution When diassembling, make sure the unit is turned off	  

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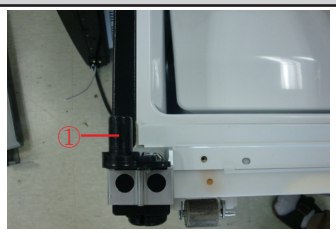
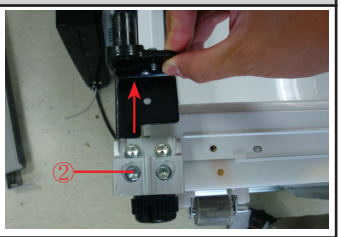
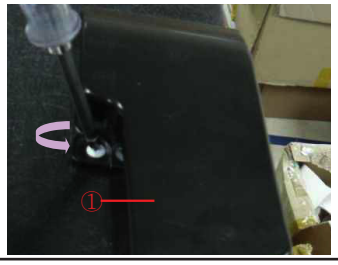
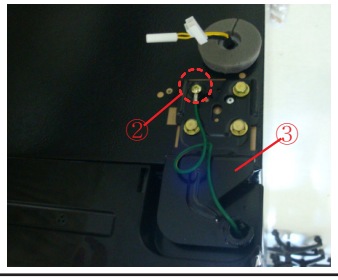
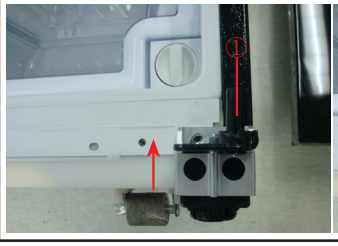
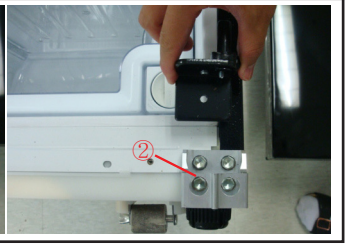
Part name	How To Do	Descriptive Picture
Door Fre	**Removing the Lower hinge.** 1.Remove the door from the lower hinge(①)by carefully lifting the door. 2.Remove the lower hinge from the bracket hinge(②)by lifting the lower hinge in the direction of the arrow.	 

3–3) REFRIGERATOR DOOR

Part name	How To Do	Descriptive Picture
Door Ref	**Removing the Upper hinge.** 1.With the door colsed,remove the upper hinge cover(①)using a screwdriver.	
	2.Remove hinge . ground screw(②) and take off the upper hinge(③)along the arrow. Be careful not to scratch Caution	
	Removing the Lower hinge. 1.Remove the door from the lower hinge(①)by carefully lifting the door. 2.Remove the lower hinge from the bracket hinge(②)by lifting the lower hinge in the direction of the arrow.	 

NOTE

- Lift the door straight up.
- Be careful not to pinch the water tubing and wire harness on the door.
- Place doors on a protected surface.
- After disassembling the freezer / refrigerator door, move it to the appropriate location.

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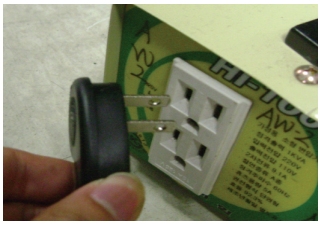
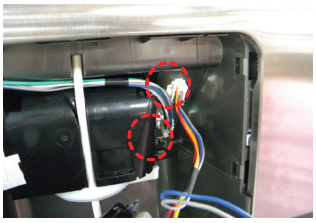
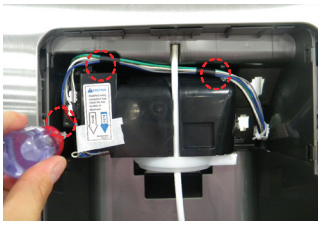
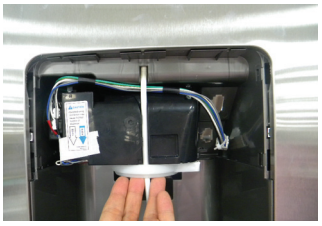
3–4) CONTROL PANEL

Part name	How To Do	Descriptive Picture
Control Panel	Unplug the Refrigerator Power Cord.	
	Disassemble one screw with plus driver as shown in the picture.	
	Pull out to the front to disassemble ASSY COVER DISPENSER as shown in the picture.	
	Disassemble two remarked sites of housing	
	Disassemble three remarked screws with plus driver.	
	Pull out ASSY CASE ICE ROUTE for disassembly	

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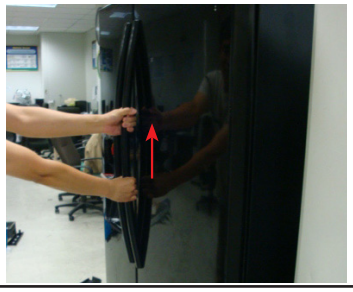
3–5) DOOR GASKET

Part name	How To Do	Descriptive Picture
Door Gasket	**The door gasket is a molded gasket set into a channel located in the door liner.** 1.Open the door 2.Grasp the gasket and pull in an outward motion until the molded gasket separates from the door liner.	

3–6) DOOR HANDLE

Part name	How To Do	Descriptive Picture
Door Handle	**Lift the handle upward motion with on.**	

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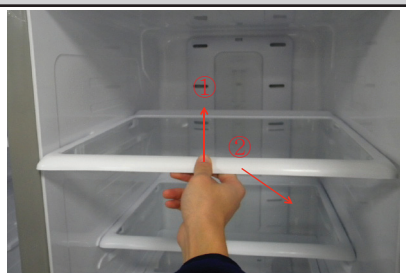
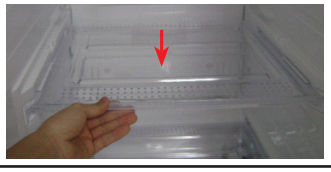
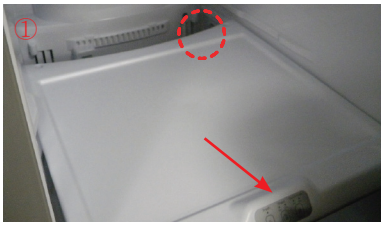
3-7) TEMPERED GLASS SHELF

Part name	How To Do	Descriptive Picture
Tempered Glass Shelf	**These shelves allow storage of larger items and pull out for easy access.** 1. Pull the shelf out as far as it goes. 2. Lift it up and remove it. CAUTION Be careful of injury	 
	–Pull out shelf to the direction of arrow until housing is shown. (Only RS25H5121**) –Pull out shelf to the direction of arrow for disassembly (Only RS25H5111**)	
	After removing housing, disassemble shelf (Only RS25H5121**)	

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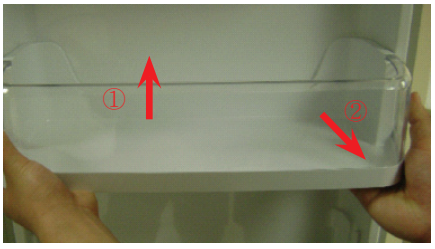
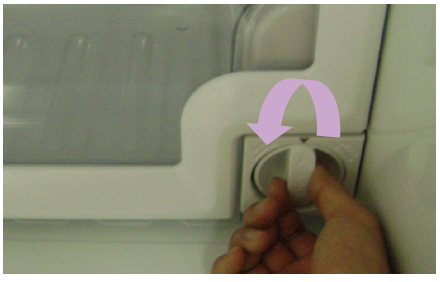
3–8) PLASTIC DRAWERS IN REFRIGERATOR

Part name	How To Do	Descriptive Picture
Drawer In Refrigerator	**Drawers are designed for storage of fruits, vegetables, and deli items, The drawers are located in the lower portion of the refrigerator.** 1. Pull out the drawer as far as it goes. 2. Tilt the drawer up and pull it out until it is removed.	

3–9) GALLON DOOR BIN

Part name	How To Do	Descriptive Picture
Gallon Door Bin	**The door bins allow storage of perishable items.** 1. Push the bin up and slide it out.	

3–10) WATER FILTER

Part name	How To Do	Descriptive Picture
Water Filter	**The water filter is located in the lower right-hand corner of the refrigerator. The water filter for the ice maker and the water dispenser.** 1. Turn the water filter 1/4 turn counterclockwise and pull it forward.	

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3–11) WATER FILTER TANK OF REFRIGERATOR

Part name	How To Do	Descriptive Picture
Water Filter Tank	**Remove the screw.**	
	Remove the fitting clip & Remove the water hose by pressing the coupler.	
	Remove the screw.	
	Remove the screw.	

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Part name	How To Do	Descriptive Picture
Water Tank	**Separate Water tank from Case-water tank.**	
	Remove the Fitting clip.	
	Pull out the Hose by pressing the coupler	

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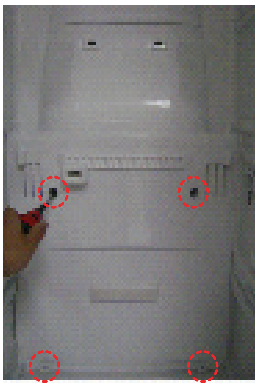
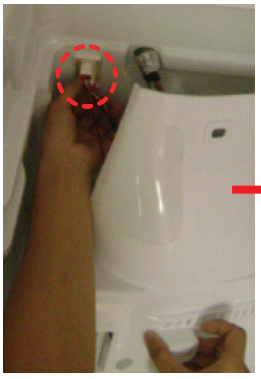
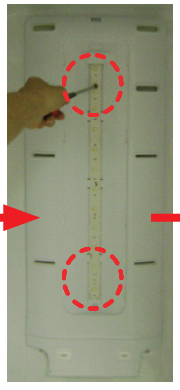
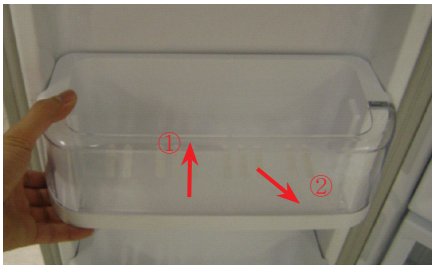
3–12) DAMPER OF REFRIGERATOR

Part name	How To Do	Descriptive Picture
Damper-Ref	1. Put (-) driver into the gap between Cover-Lamp and Damper. 2. Pull out the Cover-Lamp.	
	Disconnect the wire connector.	
	Remove the screw.	

3–13) DOOR BIN OF FREEZER

Part name	How To Do	Descriptive Picture
Door Bin In Freezer	1. Push the bin up 2. slide it out	

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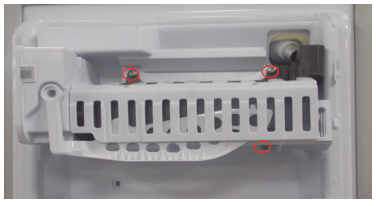
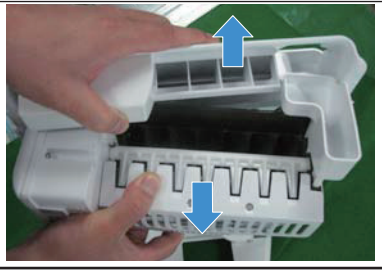
3–14) Ice Maker Compartment

Part name	How To Do	Descriptive Picture
Ice Bucket Assy	Disassemble the Ice-Bucket Assy by holding the handles and pulling up the bottom part slightly.	
Cover I/M	Lift up the Icemaker Cover and gently pull out.	
Auger Motor Assy	Unscrew tje 4 screws and disassemle the ASSY ICE MAKER-INDOOR as shown.	
	Disconnect the hosusing connectors by gently pulling.	
Ice Maker Assy	Unscrew the 3 screws.	
	Disassemble the Ice Maker Assy.	

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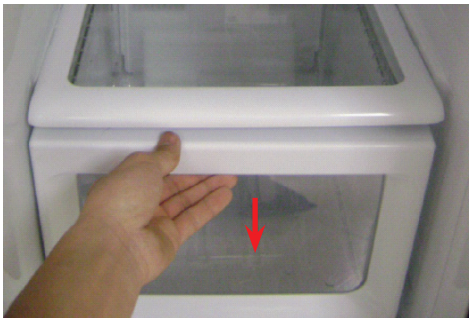
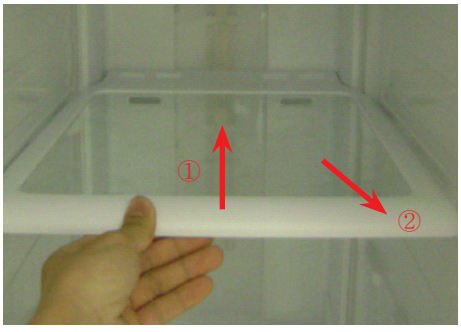
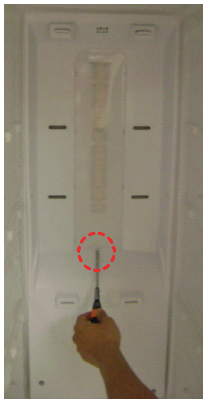
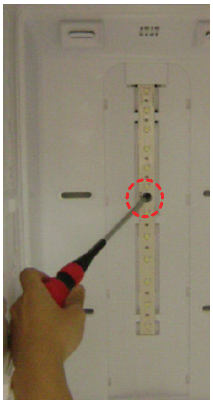
3–15) PLASTIC DRAWER IN FREEZER

Part name	How To Do	Descriptive Picture
PLASTIC DRAWER IN FREEZER	**Drawers are designed for storage of meat and dry foods. The drawers are located in the lower portion of the freezer.** 1. Pull out the drawer as far as it goes. 2. Tilt the drawer up and pull it out until it is removed.	

3–16) FREEZER SHELF

Part name	Descriptive Picture	Descriptive Picture
Freezer Shelf	**The shelves slide out for easy access for frozen items.** 1. Slide the shelf out as far as you can. 2. Tilt down and slide it out of the compartment.	

3–17) COVER MULTI IN FREEZER

Part name	How To Do	Descriptive Picture
COVER MULTI IN FREEZER	**1. Pull out the screw caps and remove screws (6).** **2. Remove the evaporator cover in the direction of outwards.**	 

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3. DISASSEMBLY AND REASSEMBLY

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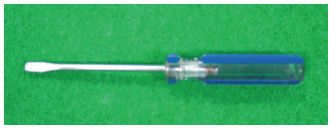
3–1) Caution on disassembly

- When replacing or repairing electric components, unplug power cord before you replace or repair.
  → Be careful of electric shock
- When replacing electric components, use a regular component.
  → Be sure to check the indications like the model number, rating voltage, rating current, operation temperature etc..
- When repairing, the wiring of harness should be free from water infiltration and firm.
  → When applying force, the harness shouldn't be detached.
- When repairing, completely remove dust and foreign substances from housing, wiring, joint etc..
  → Prevents fire due to tracking or short.
- Check if water came into electric components.
  → If there is a sign of water infiltration, replace the component and take necessary action like insulation tapping etc..
- Check the assembly of the component after repairing.
  → Maintain the same status as that before repairing.
- Check the using environment of the refrigerator.
  → If the installation is made unstably or the machine is installed in humid conditions or water, change its location.
- If grounding seems necessary, ground it.
  → If there is risk of short-circuit due to water or humid conditions, be sure to earth.
- Do not plug several devices in one socket.
- Check for breakage, press, scratch, deterioration etc. of power plug and power consent.
  → Immediately repair if the power plug or power consent is defective.
  → When moving the product, be careful not to get scratch or pressed due to surrounding objects.
- Do not store food unstably or do not store bottles in the freezer.
- Do not let consumer repair the machine personally.
- Do not store other materials except food in the refrigerator.
  → Medicine, chemical sample and etc. : Home refrigerator cannot maintain precise temperature.
  → Highly flammable material (alcohol, benzene, ether, LP gas, butane gas etc.) : explosive.

- TOOLS REQUIRED FOR DISASSEMBLY

IMAGE	ITEM
	(+) SCREW DRIVER
	(-) SCREW DRIVER
	(-) SMALL SCREW DRIVER
	SOCKET WRENCH

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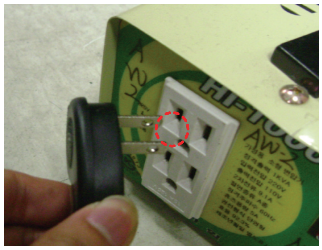
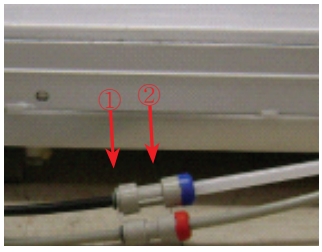
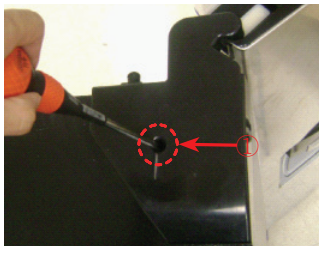
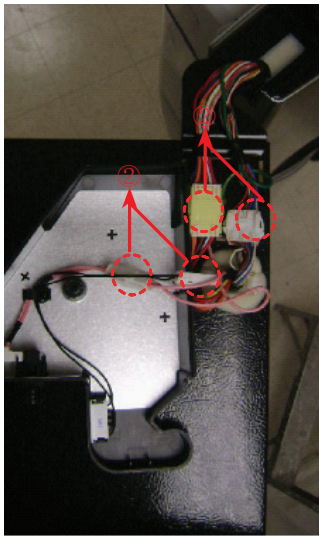
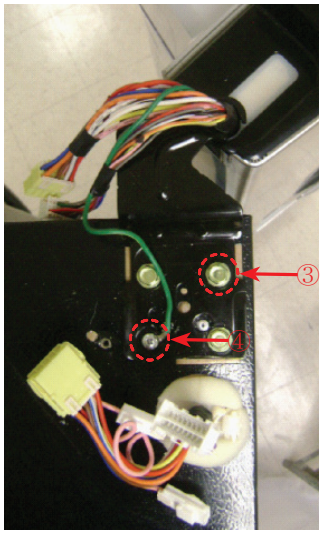
3–2) Freezer Door

Part name	How To Do	Descriptive Picture
Door Freezer	**Removing the Front leg cover.** 1.Open the freezer and refrigerator doors. 2.Take off the front leg cover by turning the three screw counter-clockwise.	
	Removing the Water supply line. 1.Separate the Water Supply Line from the Refrigerator by pressing the coupler(②) 2.pulling the water tube(①)away. Caution If a red clip is on the coupler, it must be removed before removing the tube.	
	Removing the Upper hinge. 1.With the door closed,remove the upper hinge cover(①)using a screwdriver. 2.Disconnect the wires(②). 3.Remove hinge screws(③)and ground screw(④)counter-clockwise and take off the upper hinge(⑤)along the arrow. Caution When diassembling, make sure the unit is turned off	  

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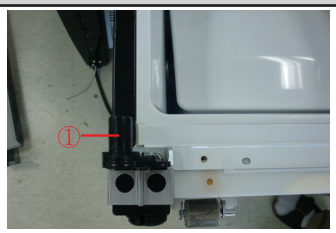
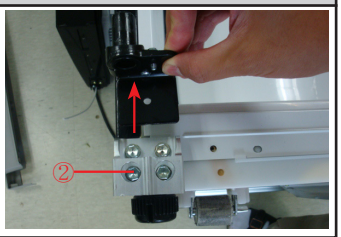
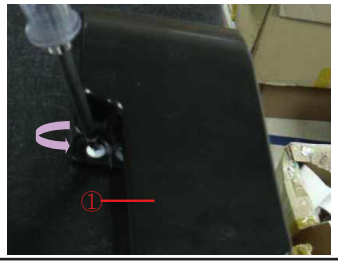
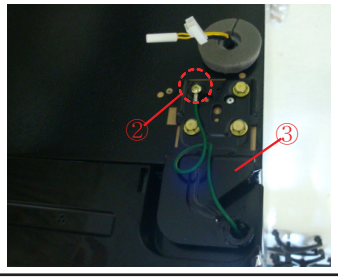
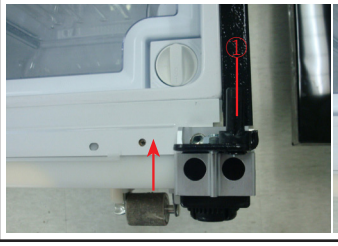
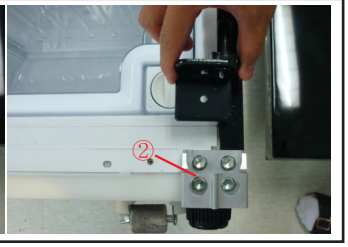
Part name	How To Do	Descriptive Picture
Door Fre	**Removing the Lower hinge.** 1.Remove the door from the lower hinge(①)by carefully lifting the door. 2.Remove the lower hinge from the bracket hinge(②)by lifting the lower hinge in the direction of the arrow.	 

3–3) REFRIGERATOR DOOR

Part name	How To Do	Descriptive Picture
Door Ref	**Removing the Upper hinge.** 1.With the door colsed,remove the upper hinge cover(①)using a screwdriver.	
	2.Remove hinge . ground screw(②) and take off the upper hinge(③)along the arrow. Be careful not to scratch Caution	
	Removing the Lower hinge. 1.Remove the door from the lower hinge(①)by carefully lifting the door. 2.Remove the lower hinge from the bracket hinge(②)by lifting the lower hinge in the direction of the arrow.	 

NOTE

- Lift the door straight up.
- Be careful not to pinch the water tubing and wire harness on the door.
- Place doors on a protected surface.
- After disassembling the freezer / refrigerator door, move it to the appropriate location.

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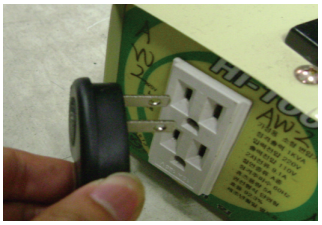
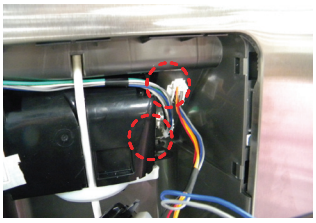
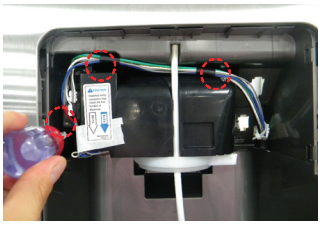
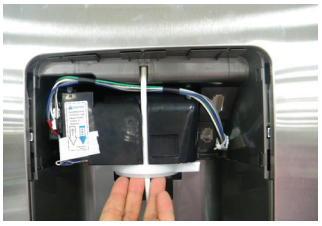
3–4) CONTROL PANEL

Part name	How To Do	Descriptive Picture
Control Panel	Unplug the Refrigerator Power Cord.	
	Disassemble one screw with plus driver as shown in the picture.	
	Pull out to the front to disassemble ASSY COVER DISPENSER as shown in the picture.	
	Disassemble two remarked sites of housing	
	Disassemble three remarked screws with plus driver.	
	Pull out ASSY CASE ICE ROUTE for disassembly	

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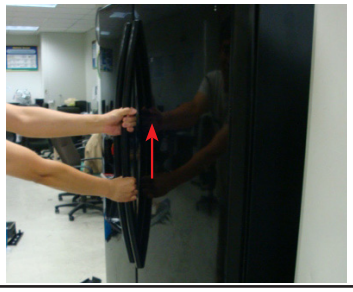
3–5) DOOR GASKET

Part name	How To Do	Descriptive Picture
Door Gasket	**The door gasket is a molded gasket set into a channel located in the door liner.** 1.Open the door 2.Grasp the gasket and pull in an outward motion until the molded gasket separates from the door liner.	

3–6) DOOR HANDLE

Part name	How To Do	Descriptive Picture
Door Handle	**Lift the handle upward motion with on.**	

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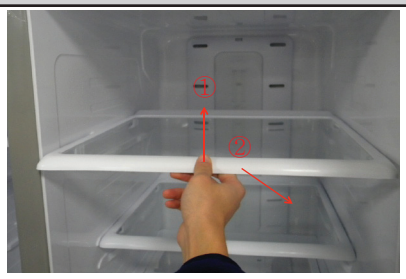
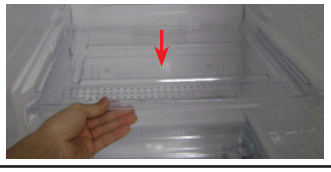
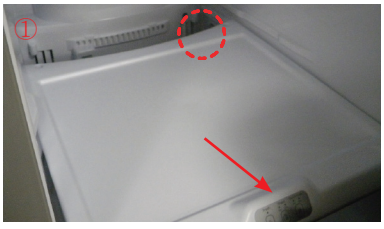
3-7) TEMPERED GLASS SHELF

Part name	How To Do	Descriptive Picture
Tempered Glass Shelf	**These shelves allow storage of larger items and pull out for easy access.** 1. Pull the shelf out as far as it goes. 2. Lift it up and remove it. CAUTION Be careful of injury	 
	–Pull out shelf to the direction of arrow until housing is shown. (Only RS25H5121**) –Pull out shelf to the direction of arrow for disassembly (Only RS25H5111**)	
	After removing housing, disassemble shelf (Only RS25H5121**)	

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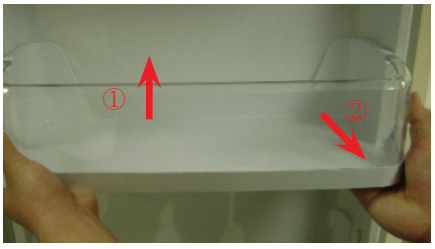
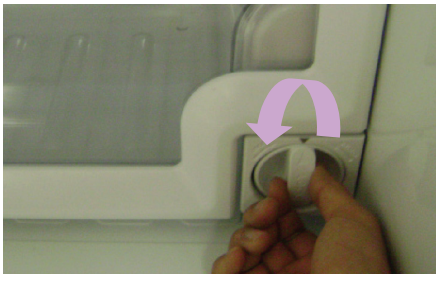
3–8) PLASTIC DRAWERS IN REFRIGERATOR

Part name	How To Do	Descriptive Picture
Drawer In Refrigerator	**Drawers are designed for storage of fruits, vegetables, and deli items, The drawers are located in the lower portion of the refrigerator.** 1. Pull out the drawer as far as it goes. 2. Tilt the drawer up and pull it out until it is removed.	

3–9) GALLON DOOR BIN

Part name	How To Do	Descriptive Picture
Gallon Door Bin	**The door bins allow storage of perishable items.** 1. Push the bin up and slide it out.	

3–10) WATER FILTER

Part name	How To Do	Descriptive Picture
Water Filter	**The water filter is located in the lower right-hand corner of the refrigerator. The water filter for the ice maker and the water dispenser.** 1. Turn the water filter 1/4 turn counterclockwise and pull it forward.	

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3–11) WATER FILTER TANK OF REFRIGERATOR

Part name	How To Do	Descriptive Picture
Water Filter Tank	**Remove the screw.**	
	Remove the fitting clip & Remove the water hose by pressing the coupler.	
	Remove the screw.	
	Remove the screw.	

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Part name	How To Do	Descriptive Picture
Water Tank	**Separate Water tank from Case-water tank.**	
	Remove the Fitting clip.	
	Pull out the Hose by pressing the coupler	

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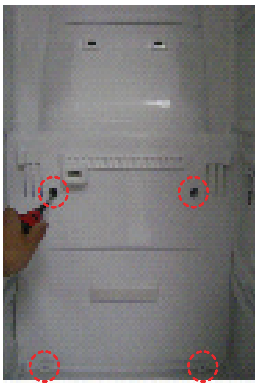
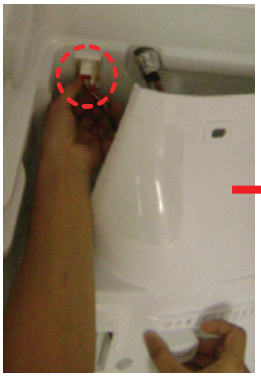
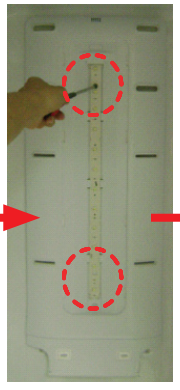
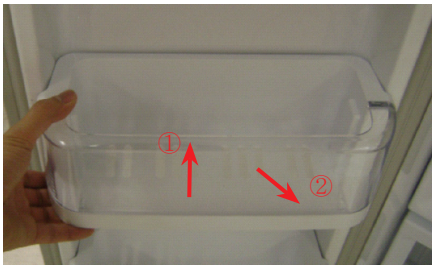
3–12) DAMPER OF REFRIGERATOR

Part name	How To Do	Descriptive Picture
Damper-Ref	1. Put (-) driver into the gap between Cover-Lamp and Damper. 2. Pull out the Cover-Lamp.	
	Disconnect the wire connector.	
	Remove the screw.	

3–13) DOOR BIN OF FREEZER

Part name	How To Do	Descriptive Picture
Door Bin In Freezer	1. Push the bin up 2. slide it out	

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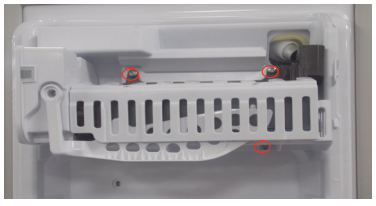
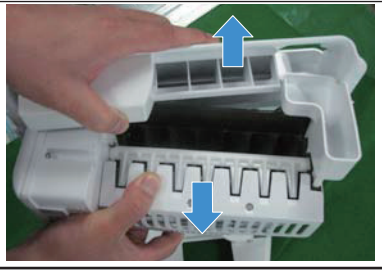
3–14) Ice Maker Compartment

Part name	How To Do	Descriptive Picture
Ice Bucket Assy	Disassemble the Ice-Bucket Assy by holding the handles and pulling up the bottom part slightly.	
Cover I/M	Lift up the Icemaker Cover and gently pull out.	
Auger Motor Assy	Unscrew tje 4 screws and disassemle the ASSY ICE MAKER-INDOOR as shown.	
	Disconnect the hosusing connectors by gently pulling.	
Ice Maker Assy	Unscrew the 3 screws.	
	Disassemble the Ice Maker Assy.	

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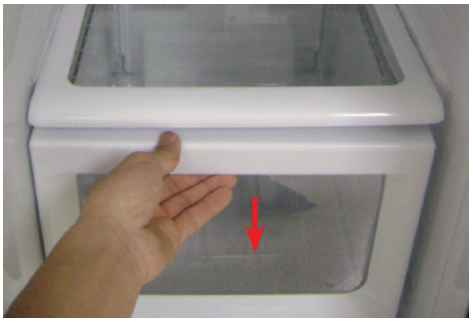
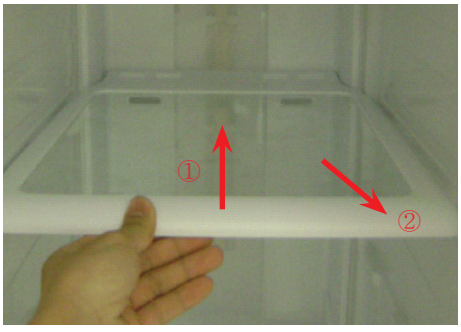
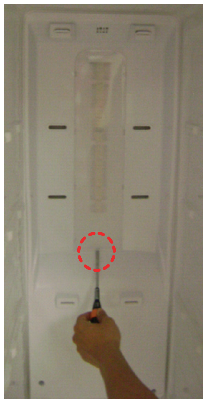
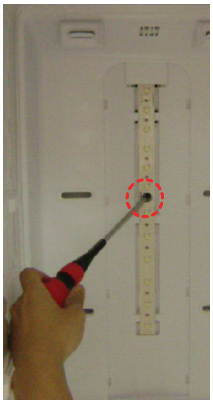
3–15) PLASTIC DRAWER IN FREEZER

Part name	How To Do	Descriptive Picture
PLASTIC DRAWER IN FREEZER	**Drawers are designed for storage of meat and dry foods. The drawers are located in the lower portion of the freezer.** 1. Pull out the drawer as far as it goes. 2. Tilt the drawer up and pull it out until it is removed.	

3–16) FREEZER SHELF

Part name	Descriptive Picture	Descriptive Picture
Freezer Shelf	**The shelves slide out for easy access for frozen items.** 1. Slide the shelf out as far as you can. 2. Tilt down and slide it out of the compartment.	

3–17) COVER MULTI IN FREEZER

Part name	How To Do	Descriptive Picture
COVER MULTI IN FREEZER	**1. Pull out the screw caps and remove screws (6).** **2. Remove the evaporator cover in the direction of outwards.**	 

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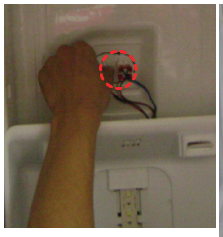
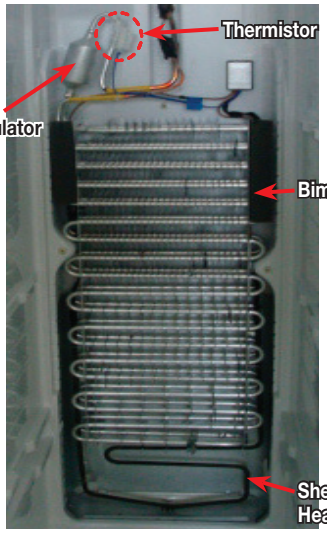
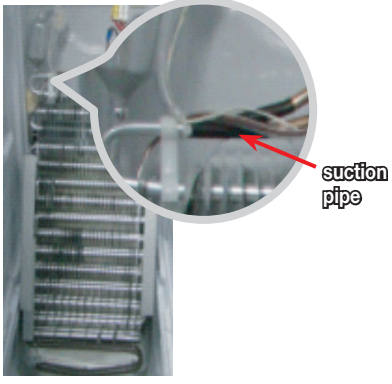
3–18) EVAPOARTOR COVER IN FREEZER

Part name	How To Do	Descriptive Picture
EVAPOARTOR COVER IN FREEZER	**1. Remove the screws.** **2. Remove the cover-evap front.**	

3–19) EVAPORATOR IN FREEZER

Part name	How To Do	Descriptive Picture
Evaporator In Freezer	**Evaporator is located in the bottom of freezer to produce cold air driven across the evaporator coils.** 1. Take off the ductwork in Freezer. 2. Disconnect the wire connector (Heater, Bimental, and Thermistor). 3. Desolder the inlet and outlet tubes. 5. Remove the evaporator. 4. Bend the suction pipe. 6. Take the same steps to seal the system as mentioned earlier. Caution: When diassembling, make sure the unit is turned off	 * Reference (How To Do #4) 

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3–20) AMBIENT THERMISTOR

Part name	How To Do	Descriptive Picture
Ambient Thermistor	The ambient thermistor is located inside the upper hinge cover. The ambient thermistor sends temperature signals to the micro-prosessor.	

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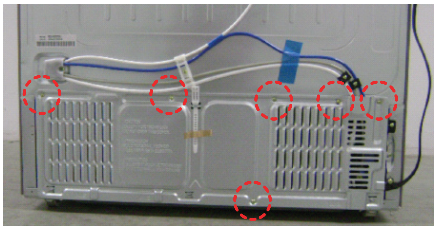
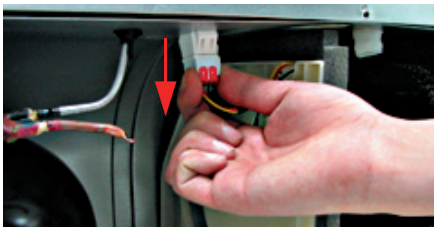
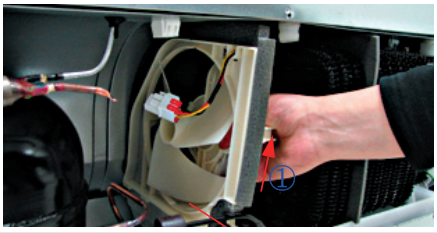
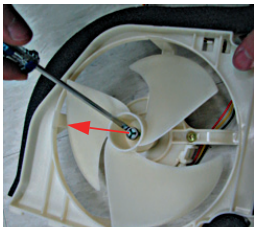
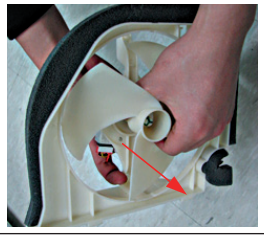
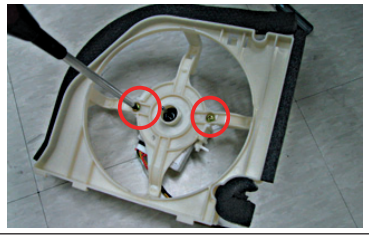
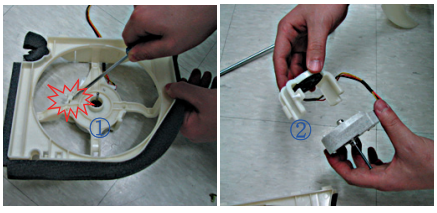
3–21) MACHINE COMPARTMENT

Part name	How To Do	Descriptive Picture
Motor Fan	1. Unscrew 5 screws of cover compressor.	
	2. Disengage the housing connector. (Refer to the picture)	
	3. Remove the hooker of support circuit motor by lifting the hooker up and pulling it out.	
	4. Remove the spring with a flatblade screwdriver. (Refer to the picture)	
	5. Remove the motor fan by pulling the fan out while grasping the motor part. (Refer to the picture)	
	6. Unscrew 2 screws fixed in the motor.	
	7. Remove the hook of the motor cover with a flat-blade (-) screwdriver and then remove the motor.	

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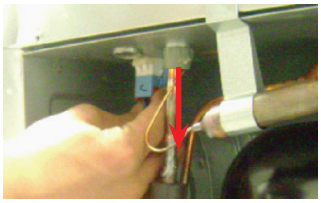
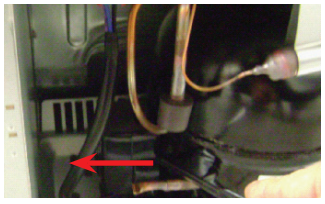
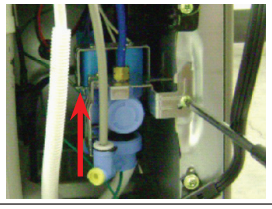
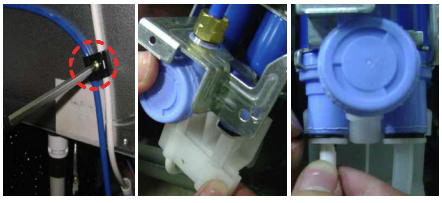
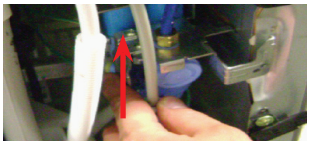
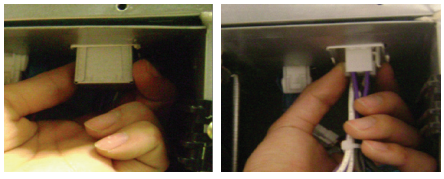
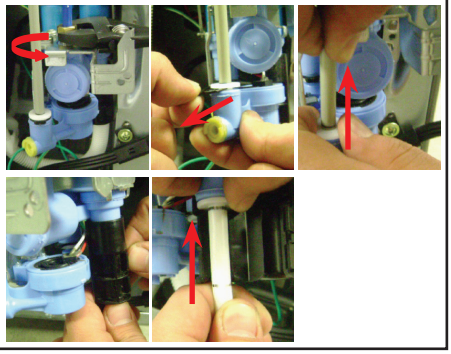
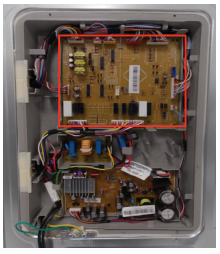
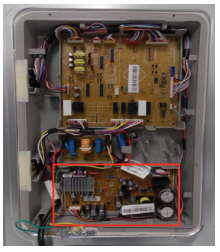
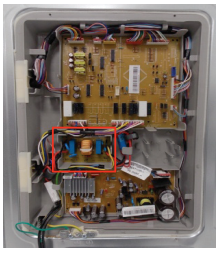
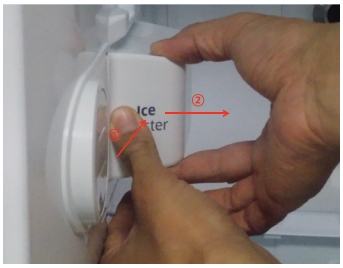
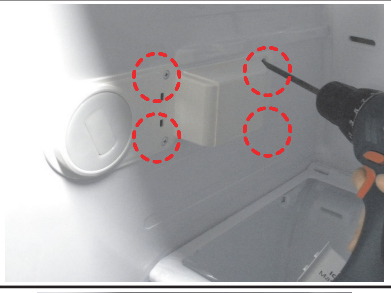
DISASSEMBLY AND REASSEMBLY

Part name	How To Do	Descriptive Picture
Relay O/L	1. Disengage the housing connector.	
	2.Remove Cover Relay.	
	3. Remove the relay O/L with a flat-blade screwdriver. (Refer to the picture)	
Water Valve	1. Unscrew the water valve fixed by the screw.	
	2. Disassemble the white part. Pull out the black pin.	
	3. Remove 2 water hose parts while pushing the upper part of. (Refer to the picture)	
	4. Disengage 2 housing connector parts.	
	5. Remove the hose connected by the nut with a wrench(8mm).	

3-22) ASSY PBA

Part name	How To Do	Descriptive Picture
ASSY PCB MAIN	Remove 4 Screws.	
	Remove the ASSY PCB MAIN	
ASSY PCB SUB INVERTER	Remove the ASSY PCB SUB INVERTER	
COIL FILTER-EMI	Remove the COIL FILTER-EMI	

3-23) ASSY CASE AUGER MOTOR

Part name	How To Do	Descriptive Picture
ASSY CASE AUGER MORTOR	Push direction 1, Pull direction 2	
	Remove the screws 4ea by using (+) driver.	
	Disconnect housing and Disassembly ASSY CASE AUGER MORTOR	

4. TROUBLESHOOTING

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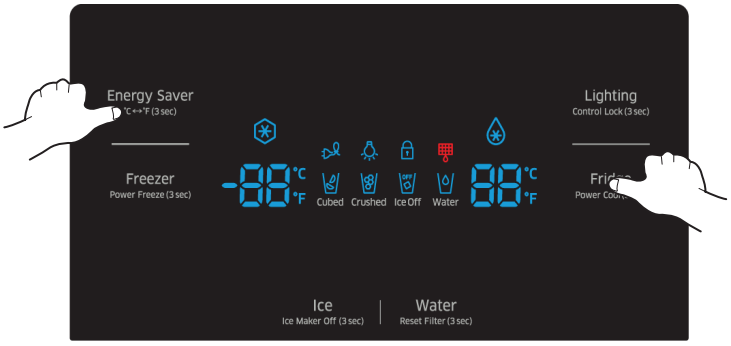
4–1) Forced Operation Function (Pull–down / Refrigerator–Freezer–Defrost / Cancellation)

- This function enables a pull-down mode, a defrost mode for the refrigerator only, a defrost mode for the freezer and the refrigerator at the same time, and a cancellation of this function.
- Press Press Energy Saver and Fridge buttons for 8 seconds simultaneously to get in the ready mode for a forced operation.
- The display panel will return to normal after 15 seconds in the ready mode.
- At the ready mode, press any button once to start a pull-down operation, twice for a defrost cycle for the refrigerator, three times for a defrost cycle for the freezer and the refrigerator, and finally four times for cancellation of this function.
- Another way to cancel this function is to simply plug out and in the power cord.

Press both button for 8 seconds at the same time



1) Pull-down

1-1) At the ready mode, press any button once then the buzzer will beep (ON for 1/2 second and OFF for 1/2 second) until this mode is cancelled.

1-2) At this pull-down mode, the compressor will start immediately (No 10 minute delay) and if the system is in the defrost cycle, it will be cancelled right away.

note) If this pull-down mode begins right after the compressor was off, the compressor may not start to run due to an overload condition.

1-3) At this mode, the compressor and freezer fan will operate continuously for 24 hours and the refrigerator fan will be on and off according to the set temperature.

1-4) After 24 hour operation, the system will be cycled at -8℉(-23℃) for the freezer and 34℉(1℃) for the refrigerator.

1-5) In order to cancel this mode at any time, select the next mode on the ready mode or power off the system.

2) Refrigerator Defrost / Refrigerator . Freezer-Defrost operation

2-1) At the pull-down mode, press any button again on the ready mode to begin the defrost cycle for the refrigerator.

2-2) The beep sound continues for 2 second at the beginning, then ON for 3/4 seconds and OFF for 1/4 second until this mode cease.

2-3) After this operation, the system will come back to normal operation.

2-4) At this mode, press any button again on the ready mode to operate the defrost cycles for both compartments.

2-5) The beep sound continues for 2 seconds at that time, then ON for 1/4 second and OFF for 3/4 seconds until the defrost operation cease.

3) Cancellation

3-1) At the R,F-Defrost mode, press ant button again on the ready mode to return to a normal operation.

3-2) Simply unplug the power cord, then plug it again to return to a normal operation.

4–2) Sound function

1) Sound function
   1-1) T o confirm that a command is inputted properly, whenever a button is pressed, a “ding-dong” sound is produced.
   1-2) When two or more buttons are pressed simultaneously or if a wrong button is pressed, there is no sound.
2) Door Open Alarm
   2-1) When the doors remain open for 2 minutes, 10 beeps are produced.
   2-2) If the doors continue to remain open more than 2 minutes, 10 beeps are produced every 1 minute.
   2-3) The beeps will cease immediately when the doors are closed.

4–3) Communication Error Display Function

1) Communication Error between MAIN MICOM and Panel MICOM
   1-1) When there is no response in 10 seconds after the Main MICOM sends a communication signal to the Panel MICOM, "PC Er" will blink on the Display Panel until the communication error is released.
   1-2) When there is no response in 10 seconds after the Main MICOM sends a communication signal to the Panel MICOM, the entire Cool Select Zone Display will blink.

4–4) Cooling Off Function(US Model Only)

This function is for display purpose on the floor of a show room or a store.

1) Mode ON /OFF
   1-1) To select for the Cooling Off mode, press Energy Saver and Freezer buttons simultaneously for 5 seconds until a “ding-dong” sound is heard.
   1-2) To cancel this mode, press the same buttons again for 5 seconds until a “dingdong” sound is heard.
2) Operation
   2-1) Most of the system function except the compressor operation are working properly.
   2-2) There is no defrost cycle in this mode.
   2-3) “OFF” is displayed on F, R Display.
   2-4) Cooling Off mode is not cleared even if power is reset.

4–5) Exhibition Mode Function(NON US Model Only)

This function is for display purpose on the floor of a show room or a store.

1)Mod e ON /OFF
   1-1) To select for the Exhibition Mode, press Energy Saver and Freezer buttons simultaneously for 8 seconds until a “ding-dong” sound is heard.
   1-2) To cancel this mode, press the same buttons again for 8 seconds until a “dingdong” sound is heard.
2) Operation
   2-1) Most of the system function except the compressor operation are working properly.
   2-2) There is no defrost cycle in this mode.
   2-3) If Exhibition mode is selected or canceled by key, displays "on" or "oF" for 5 seconds on the freezer temperature setting display of the panel and it indicates the refrigerator has entered or exited the Exhibition mode. After 5 seconds, the display panel will work normally.
   2-4) Exhibition Mode is cleared if power is reset.

4–6) Self–Diagnostics Function

1) Self-Diagnostics during the initial Power ON

1-1) The control board performs a self diagnostics test within 1 second and checks out the temperature sensors abilities.

1-2) If a sensor failure occurs, a corresponding LED segment will blink without a beep.

1-3) When a LED segment blinks, only the cancellation function (Press Lighting and Energy Saver buttons simultaneously for 8 seconds) is acceptable.

1-4) After replacement of bad sensor or cancellation of this function, this self diagnostics will end.

2) Self-Diagnostics during the normal operation

2-1) To select this function, press Lighting and Energy Saver buttons simultaneously for 8 seconds with an audible tone.

2-2) In the self diagnostic mode, only corresponding LED segments will be illuminated (see the check list on the next page)

2-3) After a 60 second illumination of error signal, the system will return to the normal operation.

Press both button for 8 seconds at the same time

Descriptions of Self-Diagnosis Error Code

ERROR CODE	ITEM	Description	How to do Self-Diagnosis
1 E	FREEZER SENSOR	Connector Slipped-Out or Open-Contact, Wire Cut or Short-Circuited, Abnormal Sensing Temp (+50°C and over or -50°C and lower).	The voltage should be within the range of 4.5V ~ 1.0V between MAIN PCB CN30 #3 and #7
2 E	FRIDGE SENSOR	Same as the above	The voltage should be within the range of 4.5V ~ 1.0V between MAIN PCB CN30 #5 and #7
4 E	FREEZER DEFROST SENSOR	Same as the above	The voltage should be within the range of 4.5V ~ 1.0V between MAIN PCB CN30 #4 and #7
5 E	FRIDGE DEFROST SENSOR	Same as the above	The voltage should be within the range of 4.5V ~ 1.0V between MAIN PCB CN30 #6 and #7
6 E	AMBIENT SENSOR	Same as the above	The voltage should be within the range of 4.5V ~ 1.0V between MAIN PCB CN30 #1 and #2
8 E	ICE MAKER SENSOR	Same as the above	The voltage should be within the range of 4.5V ~ 1.0V between MAIN PCB CN90 #3 and #8
13 E	HUMIDITY SENSOR	Separation of sensor housing part, contact error, disconnection, short circuit	The voltage should be within the range of 4.5V ~ 1.0V between MAIN PCB CN30 #7 and #9
21 E	FREEZER FAN ERROR	Bad Feed-Back Signaling Wire Contact, Motor Wire Slipped-Out, Defective Motor	The voltage should be 7V~12V between MAIN PCB CN75 #1(GRAY) and #4(YELLOW).
22 E	FRIDGE FAN ERROR	Same as the above	The voltage should be 7V~12V between MAIN PCB CN75 #1(GRAY) and #3(ORNAGE).
23 E	CONDENSER FAN ERROR	Same as the above	The voltage should be 7V~12V between MAIN PCB CN75 #1(GRAY) and #2(SKY BLUE).
24 E	FREEZER DEFROST ERROR	Connector Slipped-Out or Open- Contact, Wire Cut or Short- Circuited, Defective Thermistor, or When it keeps heating during Fridge Defrost even after it does defrosting for 80 minutes.	After separating MAIN PCB CN70 wire from PCB, resistance value between CN70 Brown ↔Black(refer to the Circuit Diagram for the resistance value) When it is 0 Ohm, check if the Heater is short and when it is Ohm, check if the wire or the thermal fuse is open.
25 E	FRIDGE DEFROST ERROR	Connector Slipped-Out or Open- Contact, Wire Cut or Short- Circuited, Defective Thermistor, or When it keeps heating during Fridge Defrost even after it does defrosting for 80 minutes.	After separating MAIN PCB CN70 wire from PCB, resistance value between CN70 White ↔Black(refer to the Circuit Diagram for the resistance value) When it is 0 Ohm, check if the Heater is short and when it is Ohm, check if the wire or the thermal fuse is open.
26 E	ICE MAKER FUNCTION ERROR	I/M Ice Ejection Horizontal Positioning Error ** Only for Dispenser models	After replacing Ice-Maker, plug in the unit and check its operation.

Descriptions of Self-Diagnosis Error Code

ERROR CODE	ITEM	Description	How to do Self-Diagnosis
41 E	COMM ERROR	No communication between MICOM MAIN and PANEL(PC Er) error code will light up with alarming sounds.	It needs a Oscilloscope to do the error check. So, it is more realistic checking the error after replacing Main or Panel PCB.
71 E	Abnormally High Freezer Temperature	The Freezer Display blinks in the following conditions. - when the Freezer temperature increases abnormally - when the Freezer Door is being left open for a certain time with the inside temperature is high	The inside temperature has risen abnormally. See if the door is being left open for a long time or it there are hot food being put inside. When its root causes get cleared, it will stop blinking after a while.
72 E	Abnormally High Fridge Temperature	The Freezer Display blinks in the following conditions. - when the Freezer temperature increases abnormally - when the Freezer Door is being left open for a certain time with the inside temperature is high	See if the door is being left open for a long time or it there are hot food being put inside. When its root causes get cleared, it will stop blinking after a while.
81 E	COMP STARING FAILURE ERROR	When the Compressor fails starting	1. it will stop blinking after a while short(U,V,W) 2. Check IPM Pins short of Inverter PBA(No. #1 ~ 26) 3. Check IPM operating Voltage(under DC 13.5V) 4. Other cases check the COMP cycle etc
82 E	COMP IPM FAULT ERROR	When there is a IPM Fault error	
83 E	COMP ABNORMAL CURRENT DETECTION ERROR	When ther is abnormal crrunt detected at the Compressor	1. Check COMP wire connections(U,V,W) 2. Check PCB Bottom side solder(R1) 3. Other cases check the COMP cycle etc
84 E	COMP MOTOR LOCKED OVER RPM ERROR	When there is a Compressor restriction error	1. Check PCB Bottom side solder(R1) 2. Check Input voltage oscillation 3. Other cases check the COMP cycle etc
85 E	COMP UNDER VOLTAGE ERROR	When there is a low voltage error	1. Check input voltage under AC 53V(if input Power is AC110~127V) or AC 106V(if input Power is AC 220 ~ 240V) 2. Short resistor R312(DC link resistor)
86 E	COMP OVER VOLTAGE ERROR	When there is a over voltage error	The voltage should be 7V~12V between MAIN PCB CN75 #3(ORANGE) and #10(GRAY).

4–7) Load Operation Check Function

1) In the normal operation, press Lighting and Energy Saver buttons simultaneously for 6 seconds, then the display panel will blink for 2 seconds.
2) Press Fridge Temp. button @ to get into this check mode with an audible tone.
3) Each illuminating LED segment stands for the component which has an ouput signal from the control board.
4) This mode will terminate automatically after 30 seconds

Press both button for 8 seconds at the same time

- Load Mode Check List

NO	ITEM	DESCRIPTION	DISPLAY	DIGITAL NO.
1	FRIDGE FAN HIGH	R-FAN HIGH RPM	Fridge second digit a	Fridge (second)
2	FRIDGE FAN LOW	R-FAN LOW RPM	Fridge second digit b	Fridge (second)
3	FRIDGE DEFROST HEATER	R-DEF HEATER ON	Fridge second digit c	Fridge (second)
4	OVER-LOAD MODE	Over 34℃ Ambient Temp	Fridge second digit e	Fridge (second)
5	LOW-TEMP MODE	Less than 21℃ Ambient Temp	Fridge second digit f	Fridge (second)
6	EXHIBIT MODE	Exhibition Mode On	Fridge second digit g	Fridge (second)
7	ICE FULL	Bucket Ice Full	Fridge first digit d	Fridge (first)
8	COMPRESSOR	COMP On	Freezer second digit a	Freezer (second)
9	FREEZER FAN HIGH	F-FAN HIGH RPM	Freezer second digit b	Freezer (second)
10	FREEZER FAN LOW	F-FAN LOW RPM	Freezer second digit c	Freezer (second)
11	FREEZER DEFROST HEATER	F-DEF HEATER ON	Freezer second digit d	Freezer (second)
12	CONDENSER FAN HIGH	C-FAN HIGH RPM	Freezer second digit e	Freezer (second)
13	CONDENSER FAN LOW	C-FAN LOW RPM	Freezer second digit f	Freezer (second)
14	DISPENSER HEATER	Dispenser Heater On	Freezer second digit g	Freezer (first)
15	C-ROOM BOX-FAN	C-ROOM BOX-FAN ON	Fridge first digit c	Freezer (first)
16	NORMAL CONDITIONS	⑤ & ⑥ All Off(22~33℃)	Fridge second digit e,f LED all Off	Fridge (second)

4–8) Restoration Function for Power Outage

1) When the freezer temperature is lower than 50℉(10℃), all on the display panel will be restored.
2) When the freezer temperature is higher than 50℉(10℃), all functions will be initialized. 0℉(-18℃)(US Only) or -3℉(-19℃)(Non US) for the freezer, 37℉(3℃) for the refrigerator, and crused for the ice type Energy Saver on corresponding models.

4–9) Set Point Shift Function

- Press Freezer Temp. and Lighting buttons simultaneously for 12 seconds to get into this mode.
- In this mode, only the display LEDs for temperature will be ON.

Press both buttons simultanequsly for 12 seconds

- Load Mode Check List

BUTTON	Function
FRIDGE	Option Item Increase
LIGHTING	Option Item Decrease
FREEZER	Option Value Increase
ENERGY SAVER	Option Value Decrease

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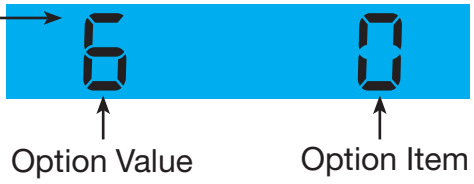
1) Freezer Temp Shifting Table

VALUE FREEZER VALU	TEMP VALUE
0	0 °C (0°F)
1	-0.5 °C (-1°F)
2	-1.0 °C (-2°F)
3	-1.5 °C (-3°F)
4	-2.0°C (-4°F)
5	-2.5°C (-5°F)
6	-3.0 °C (-6°F)
7	-3.5 °C (-7°F)
8	+0.5 °C (+1°F)
9	+1.0 °C (+2°F)
10	+1.5 °C (+3°F)
11	+2.0 °C (+4°F)
12	+2.5 °C (+5°F)
13	+3.0 °C (+6°F)
14	+3.5 °C (+7°F)
15	+4.0 °C (+8°F)

ITEM	FREEZER TEMP SHIFT
MODEL	SAME FOR ALL MODELS
OPTION	LOCATION: FRIDGE TEMP DISPLAY
	0

Ex) Lowering the Freezer default temp by -3°C

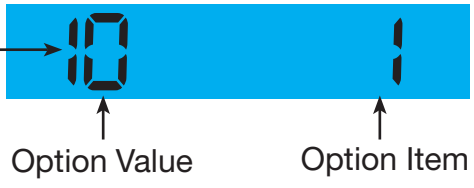


2) Fridge Temp Shifting Value

VALUE FREEZER VALU	TEMP VALUE
0	0 °C (0°F)
1	-0.5 °C (-1°F)
2	-1.0 °C (-2°F)
3	-1.5 °C (-3°F)
4	-2.0°C (-4°F)
5	-2.5°C (-5°F)
6	-3.0 °C (-6°F)
7	-3.5 °C (-7°F)
8	+0.5 °C (+1°F)
9	+1.0 °C (+2°F)
10	+1.5 °C (+3°F)
11	+2.0 °C (+4°F)
12	+2.5 °C (+5°F)
13	+3.0 °C (+6°F)
14	+3.5 °C (+7°F)
15	+4.0 °C (+8°F)

ITEM	FREEZER TEMP SHIFT
MODEL	SAME FOR ALL MODELS
OPTION	LOCATION: FRIDGE TEMP DISPLAY
	1

Ex) Raising the Fridge default temp by +1.5 °C



3) Ice-Maker Water Supply
It controls the water supply quantity with the Flow Sensor.

ITEM	OPTION ITEM
ICE-MAKER WATER SUPPLY QTY CONTROL	2

WATER SUPPLY QUANTITY	OPTION ITEM
94CC 104CC	0 1

Ex) Changing the water supply quantity to 104cc

4) Ice-Maker Ice Ejection Standby Time Controlling
; It is an option controlling the Ice Ejection Standby time of the Ice-Maker.

ITEM	DISPLAY LOCATION (FRIDGE TEMP)
ICE MAKER Ice Ejection Standby Time	3

Standby Time	Freezer Display
60min	0
47min	1
45min	2
53min	3
55min	4
57min	5
65min	6
70min	7
50min	8
50min	9
50min	10
50min	11
50min	12
50min	13
50min	14
50min	15

5) Ice-Maker Sensor Temp Shifting
- It is an option shifting the ice ejecting base temperature.

ITEM	DISPLAY LOCATION (FRIDGE TEMP)
Ice-Maker Sensor Temp Shifting	4

Ice-Maker Sensor Temp	Freezer Display
-7.5°C (18.5°F)	0
-7.0°C (19.4°F)	1
-6.5°C (20.3°F)	2
-8.0°C (17.6°F)	3
-8.5°C (16.7°F)	4
-9.0°C (15.8°F)	5
-9.5°C (14.9°F)	6
-10.0°C (14°F)	7

6) Minimum Comp RPM Setting
- This option is for sing minimum Comp RPM.
  As this option is applied, Comp RPM will be rise.
  It will help reducing continual Comp operation.

MINIMUM COMP RPM SETTING	FREEZER DISPLAY
NO RPM CHANGE	0
MINIMUM 2450RPM	1
MINIMUM 2450RPM	2
MINIMUM 2450RPM	3

ITEM	DISPLAY LOCATION (FRIDGE TEMP)
MINIMUM COMP RPM SETTING	12

7) Temp Display Option
- This option is for temp display all on mode.
  If user wants temp display always on, this option is solution.

TEMP DISPLAY OPTION	FREEZER DISPLAY
NORMAL DISPLAY (TEMP DISPLAY TEMPORALLY ON AT USE)	0
ALWAYS TEMP DISPLAY ON	1
ALWAYS TEMP DISPLAY ON	2

ITEM	DISPLAY LOCATION (FRIDGE TEMP)
TEMP DISPLAY OPTION	16

8) Dispenser/Homebar Heater Option

CODE	DISPENSER HEATER
FREEZER DISPLAY	

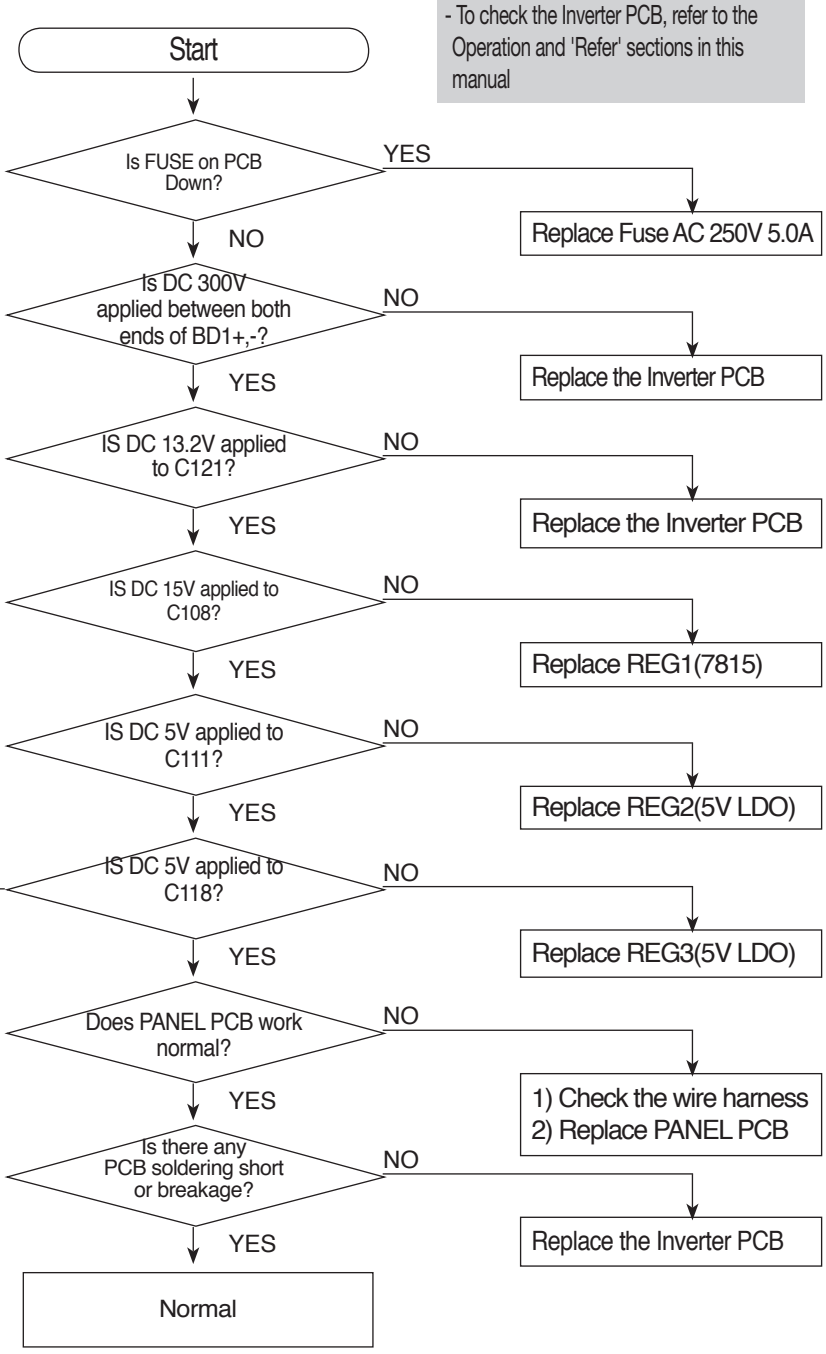
0	DISPENSER HEATER
1	HEATER OPERATION RATIO INCREASING

ITEM	DISPENSER HEATER OPTION
MODEL	SAME FOR ALL MODELS
DISPLAY	LOCATION:FRIDGE TEMP DISPLAY
	19

4–10) When there is no power at Inverter PCB or Main PCB

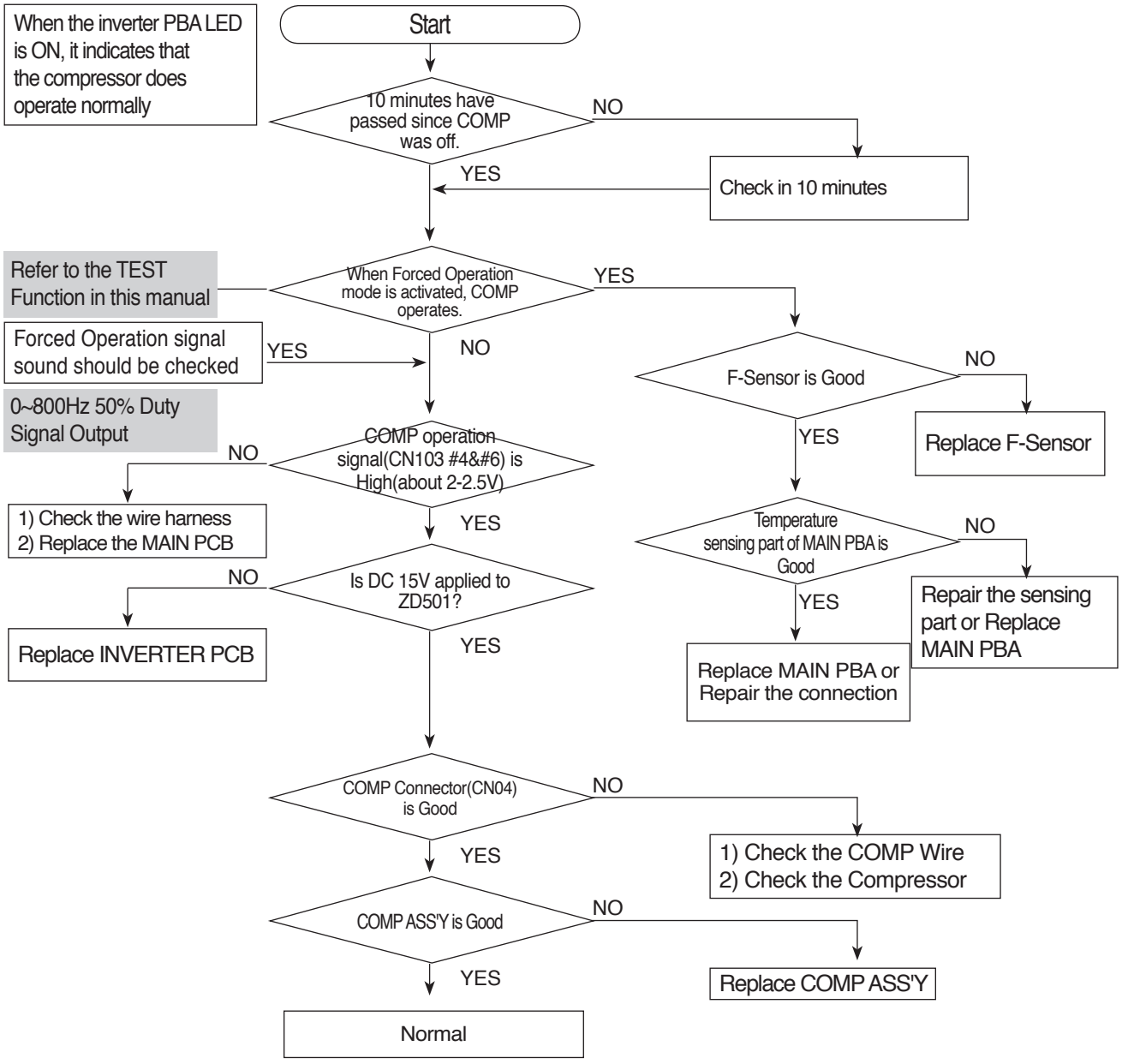
Caution There is Over AC 115V/220V and DC 310V at the Inverter PCB Power Circuit. So, be cautious when repairing the unit or measuring values..

- To check the Inverter PCB, refer to the Operation and 'Refer' sections in this manual

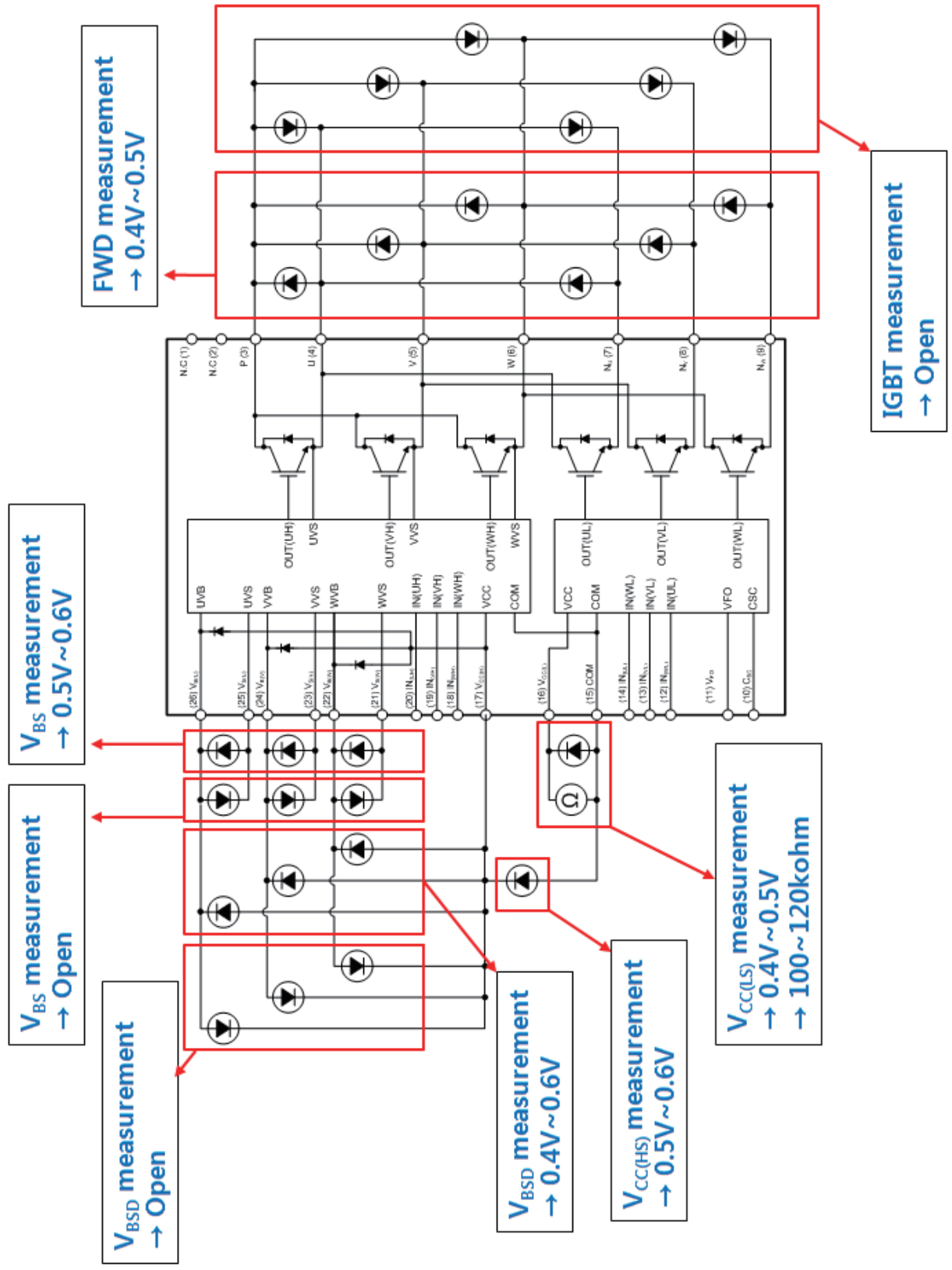


- Check MAIN PCB Wire
- Check DOOR PANEL PCB

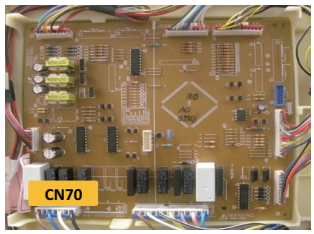
4–11) When the Compressor does not operate

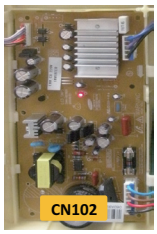


Diode Voltage of IPM



4-12) Unable to Defrost





Start

F/R-DEF Sensor is normal (with Self Diagnosis)
- NO → Replace the sensor
- YES ↓

F-DEF-HEATER:Read resistance between CN102 #1 and CN70 #7
R-DEF-HEATER:Read resistance between CN102 #1 and CN70 #3

F/R-DEF Heater is normal
- NO → Check Thermistor, Heater and their connectors
- YES ↓

Defrost Sensor Voltage is lower than 3.1V

Defrost Sensor Temp is lower than -5°C
- NO → Forced Operation for a certain time
- YES ↓

Refer to 4-1-1) Test mode on this manual.

Forced F/R Defrost

F-DEF-SENSOR:Read resistance between CN30 #4 and #7
R-DEF-SENSOR:Read resistance between CN30 #6 and #7

Power is supplied to Defrost Heater
- NO → MAIN PBA connectors are normal
- YES ↓

It goes back to Cooling Operation after heating
- NO → Check all the sensors
- YES ↓

Normal

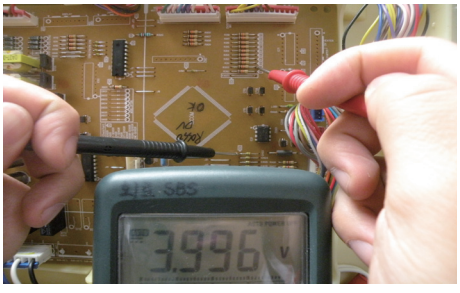
Note When F/R-DEF Sensor is higher than +10℃ and +17℃, it will stop heating and go back to Cooling Operation.

MAIN PBA connectors are normal
- NO → Repair the connectors
- YES ↓

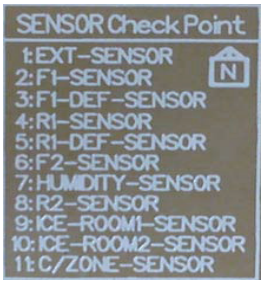
Check Thermistor, Heater and their contacts.

Repair or Replace defective relays, or PBA Ass'y

☞ Checking method of voltage for F-DEF-Sensor
- Check the voltage of Sensor Check Point #2 on the PBA
- Compare it with the temperature table after measurement. (same method is applied to other sensor)



☞ Sensor Check Point



4–13) Self–Diagnosis Error (Defective Sensor)

When there is sensor error, display panel show that. When it occurs during the initial power on time, display panel keeps blinking relevant 7-SEG and the refrigerator go into the emergency operation mode.

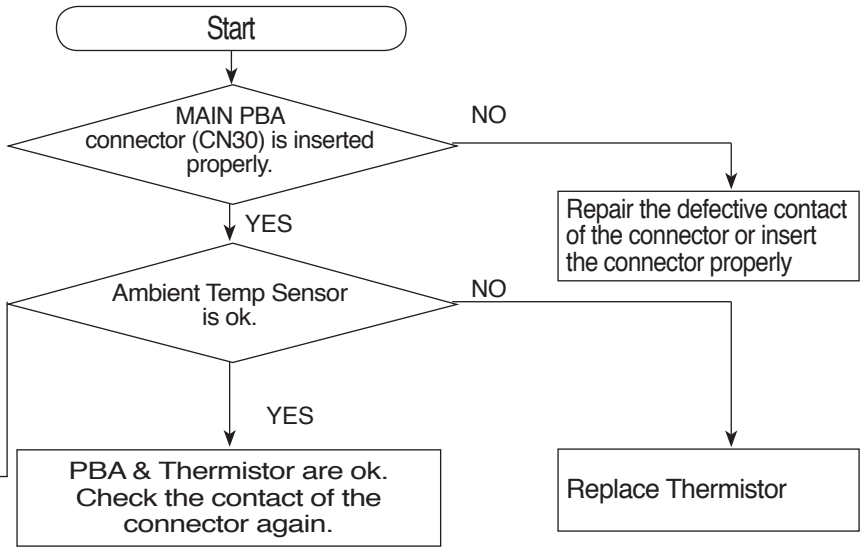
1) When the Ambient Sensor is defective,

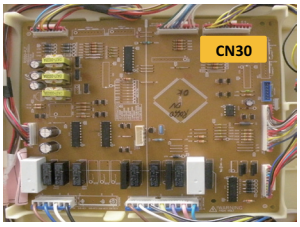
☞ Checking method of resistance for EXT-Sensor

- Compare the temperature table after measurement (same method is applied to other sensors)

Ambient-Sensor : Read the resistance between CN30 #1 and #2

Compare the room temp. with sensed temp. using Temp-Resistance Table.

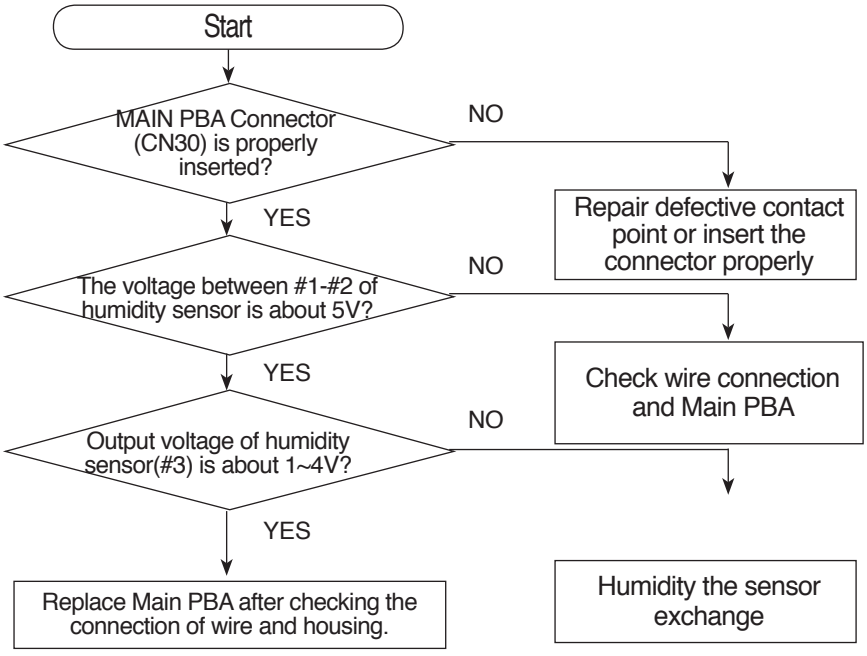




2) When the humidity sensor is defective

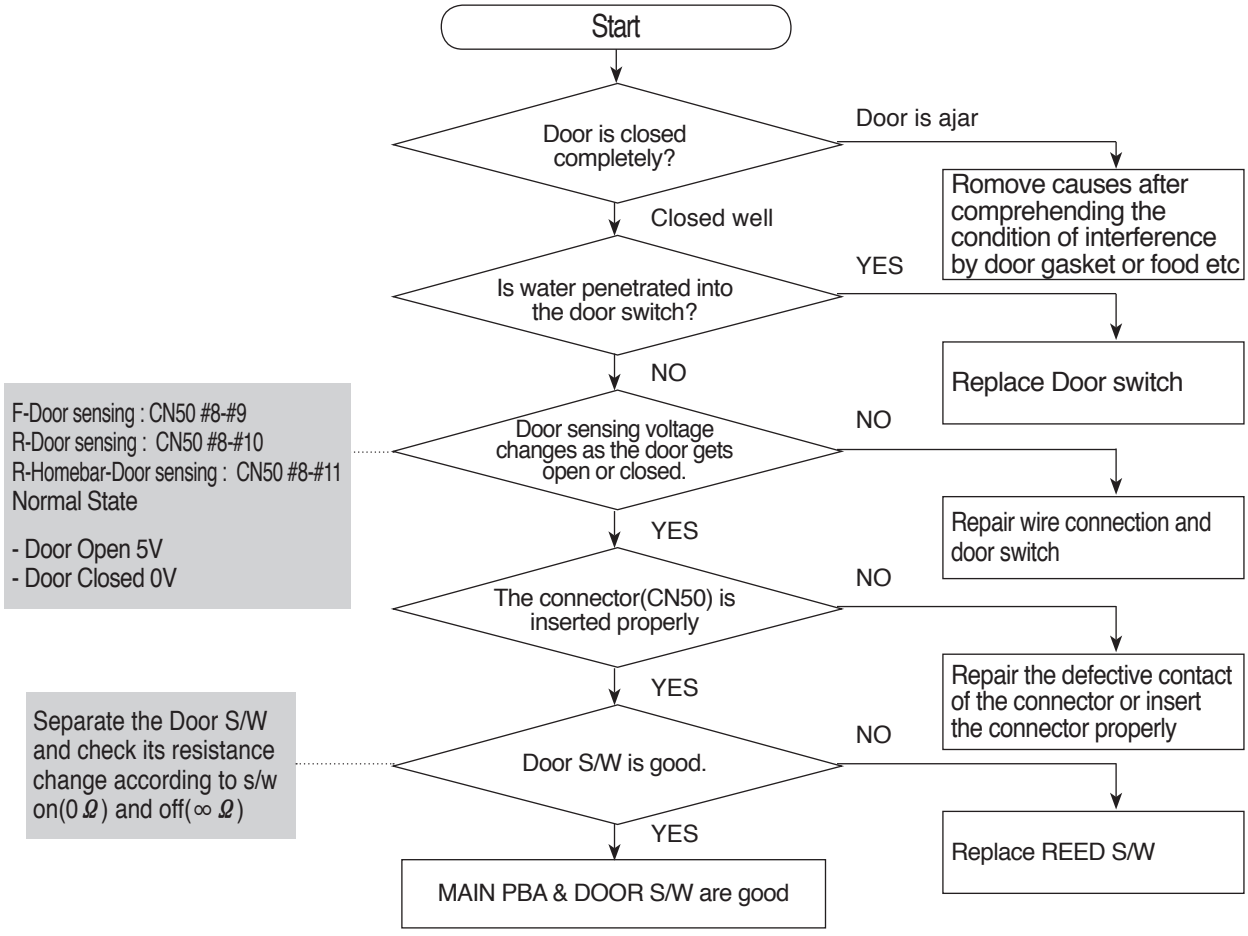
☞ Checking the supply voltage (5V)
Read the voltage between #1–#2 of humidity sensor.

☞ Checking the output voltage Read the voltage between #1–#3 of humidity sensor.
Refer to the humodoty–output voltage table

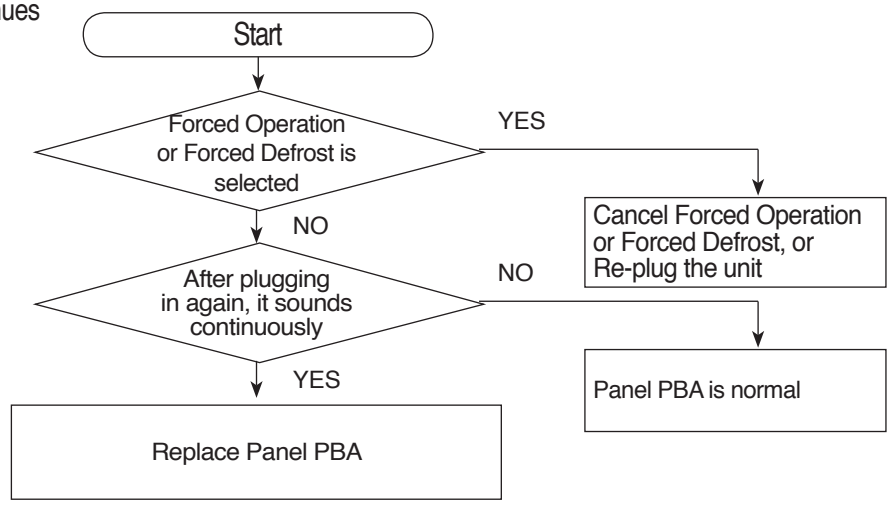


4–14) When Alarm Sound continues (Buzzer Sound)

1) When “DingDong” sound continues.

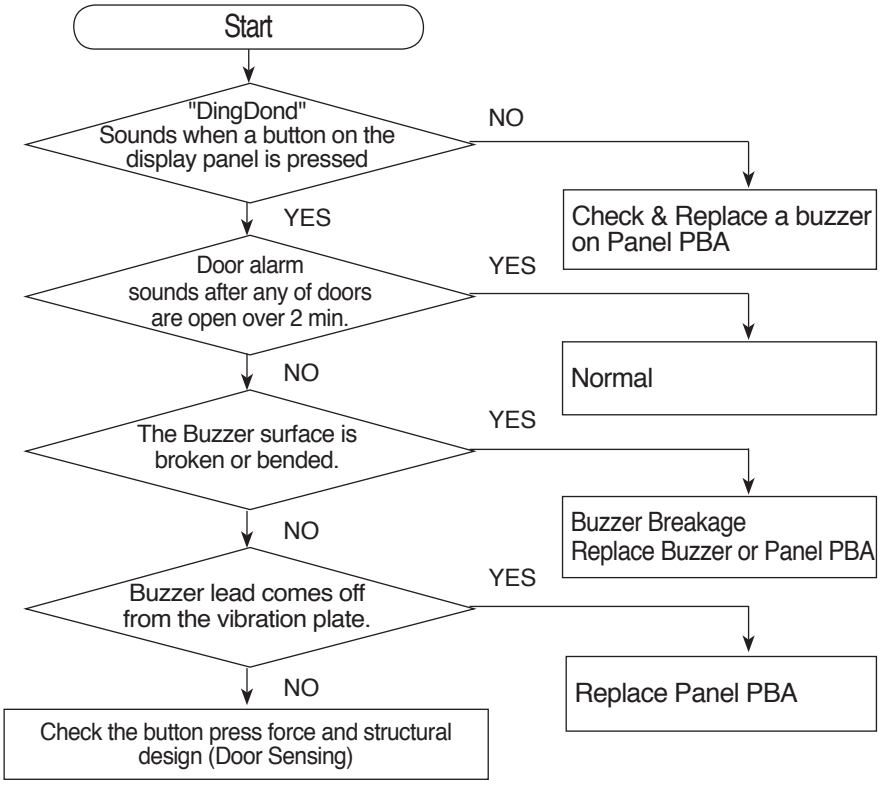


2) When "Beeping" sound continues



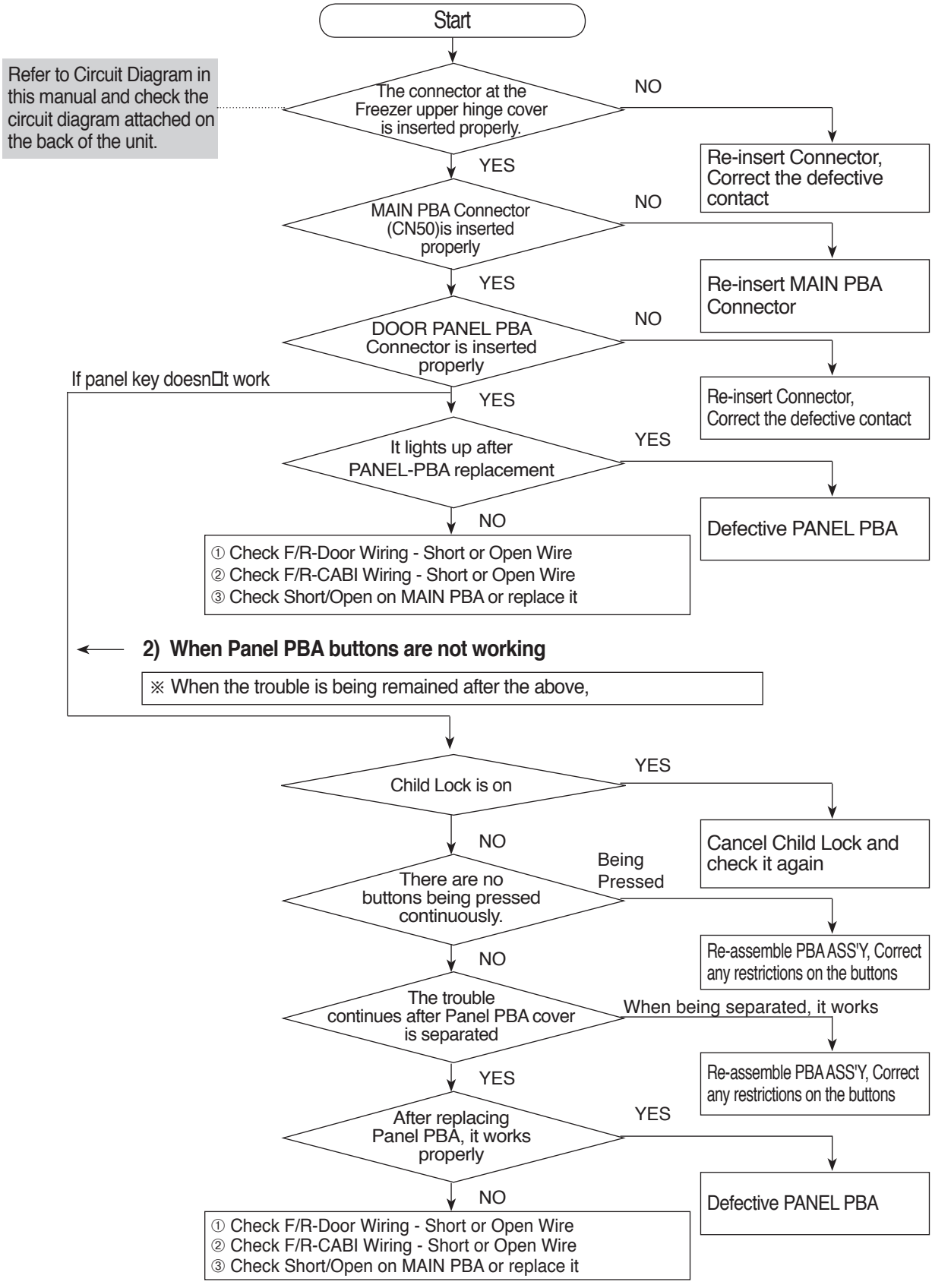
3) If a buzzer does not sound

This model has a buzzer on the Panel PBA. If the buzzer does not sounds when button is pressed, Forced Operation, door open and disconnection with Main PBA, check out defective soldering on PBA or buzzer damage. (It is recommended replacing Panel PBA if components are damaged)
※ It could be unable to hear in case there is heavy noise or built-in environment.



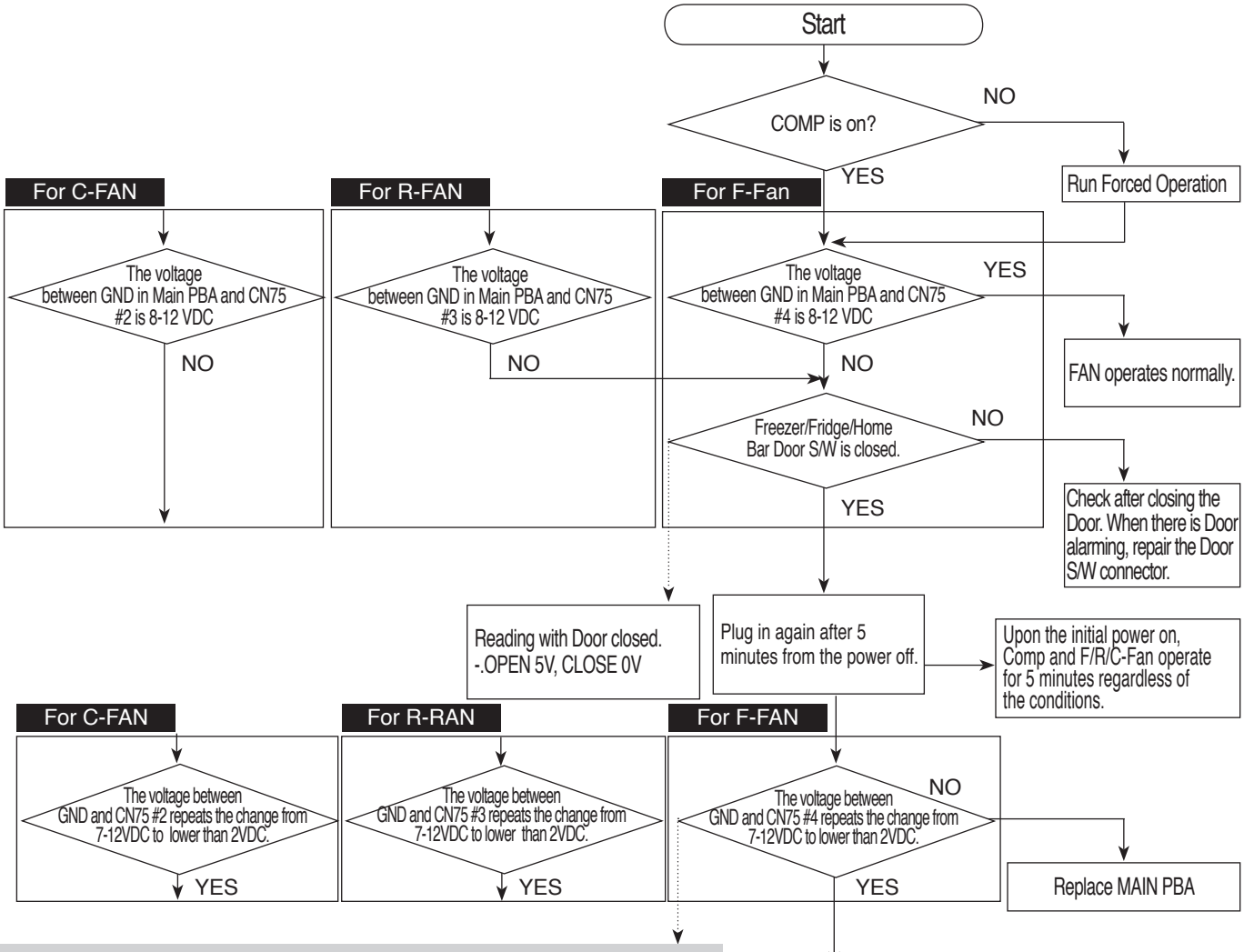
4–15) When PANEL PBA operates abnormally

1) When PANEL PBA does not light up or partially does



4–16) When Fan does not operate

- This model has BLDC FAN motor. BLDC motor is driven by DC7~12V
- F-Fan motor usually runs together with the Compressor except the Cool Select Zone function is activated. Once the door is open and closed at high ambient temperature, F-Fan motor put off its operation for one minute. Therefore, you are advised not to take it as an error.
- When fridge door is open, the F-Fan motor stops together with R-Fan motor.



Note

Pulse signal(FG) generated from the Fan motor rotation is transmitted through CN75 #6(F), #7(R), #8(C) Micom senses these signal.
If Micom senses no signal, Micom make Fan Motor stop for 10 sec and try to operate it again. Micom keeps doing the same procedure 4 times until Micom receive the signal.
If it still fails, MICOM stop trying for 10 minutes.
This procedure prevents the motor from overload when foreign substances such as ice built up around the motor restrict motor rotation.

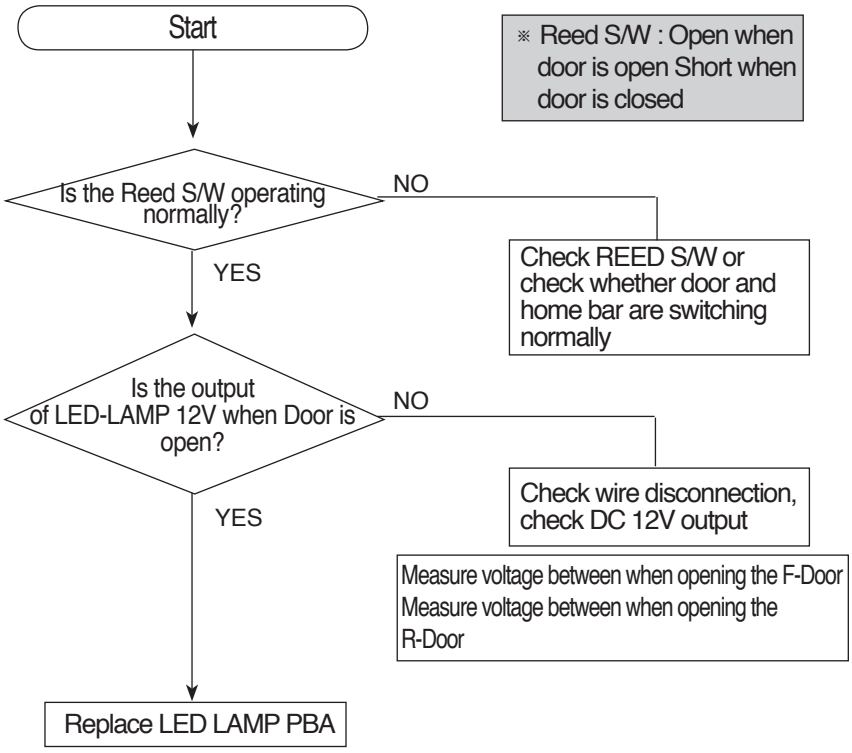
◆ Possible Causes
1. Defective FAN-MOTOR
2. Contact problem at the terminal
3. FG signal error
   (Refer to Fan-Motor circuit in this manual)

☞ Checking method of C-Fan motor voltage
- Read the voltage between MAIN PBA GND and CN75 #2
- If it has 8~12 voltage, It's normal.
  (same method is applied to other Fan motor.)

4–17) When the internal lamp of the freezer/fridge does not light up

Reference

1. When the DOOR is open, the DOOR S/W becomes OPEN. Micom senses 5V from Door S/W and recognizes that the Door is open. If 5V has sensed for more than 2 minutes, buzzer will sounds “DingDong” every 1 minute. Therefore, if the DOOR S/W is defective, it can generate the “Ding Dong” sound every 1 minute.
2. ON/OFF control of the internal lamp is linked with the DOOR S/W.

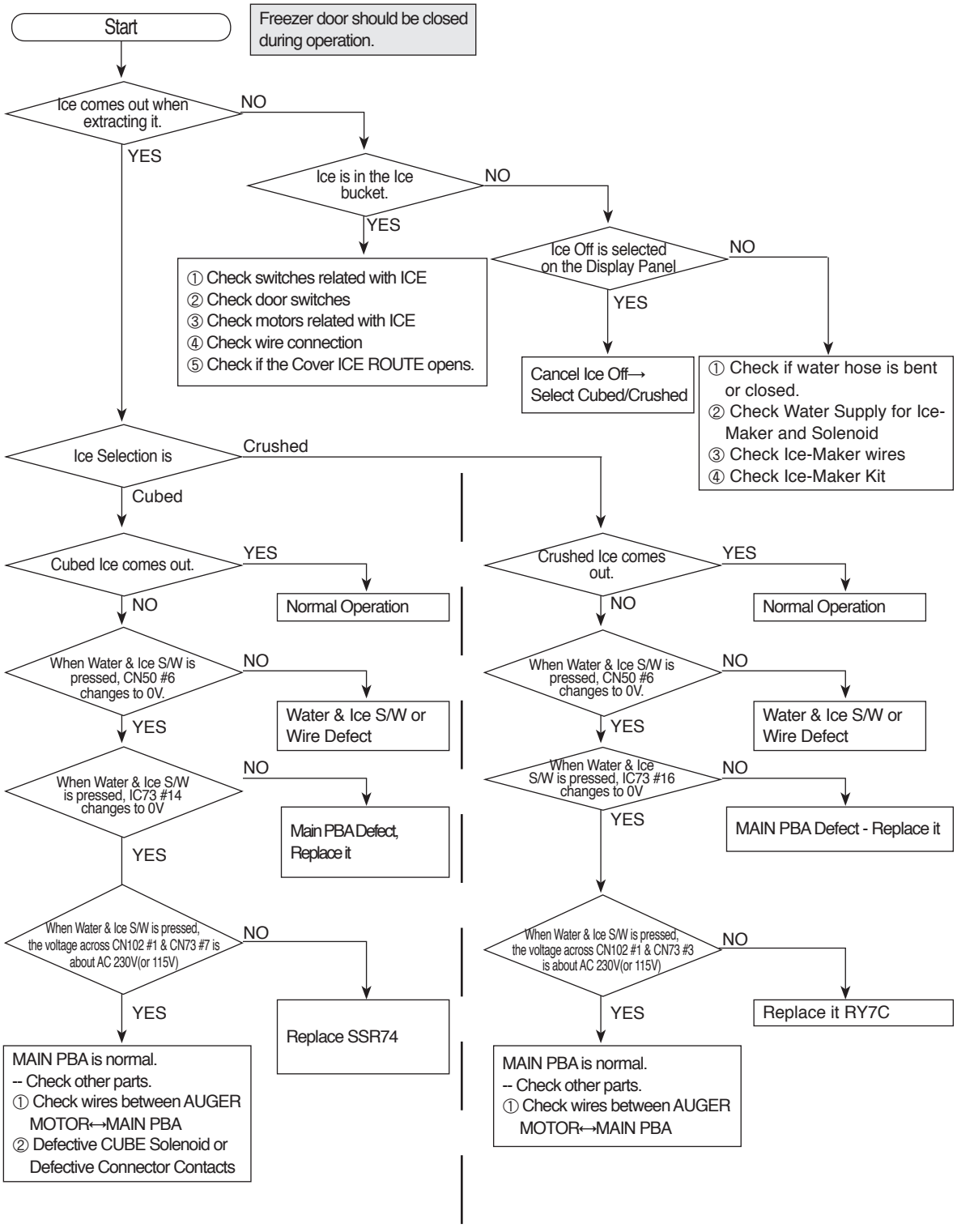


<LED LAMP control method>

	Fridge internal lamp	Freezer internal lamp
Model with LED LAMP applied	On : Fridge door is open or Fridge HomBar is open	On : Freezer door is open or Freezer HomBar is open
	IC76 - LED LAMP	IC77 - LED LAMP

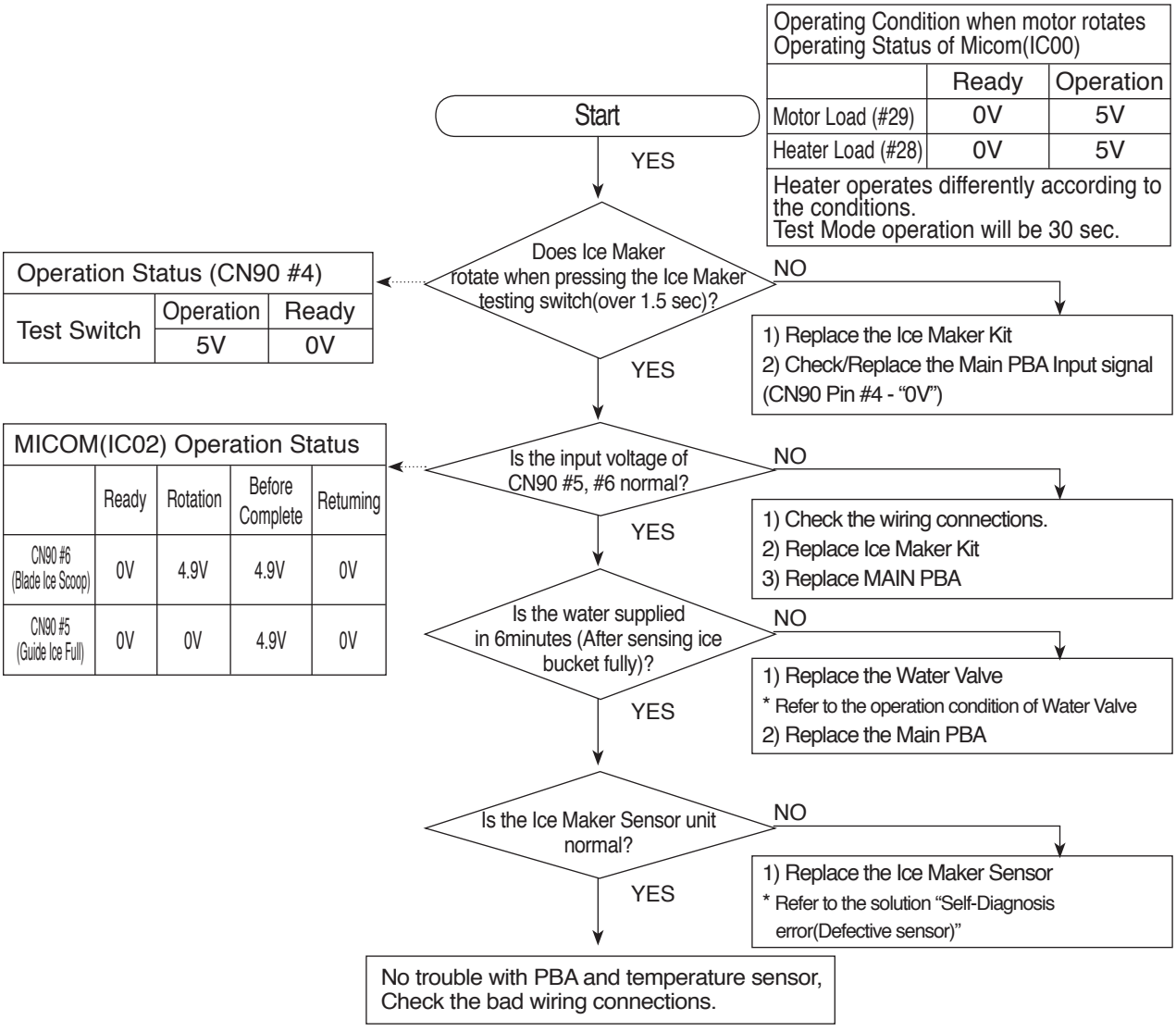
4–18) When Crush (Crushed Ice) & Cube (Cubed Ice) does not operate well

Only for Dispenser models

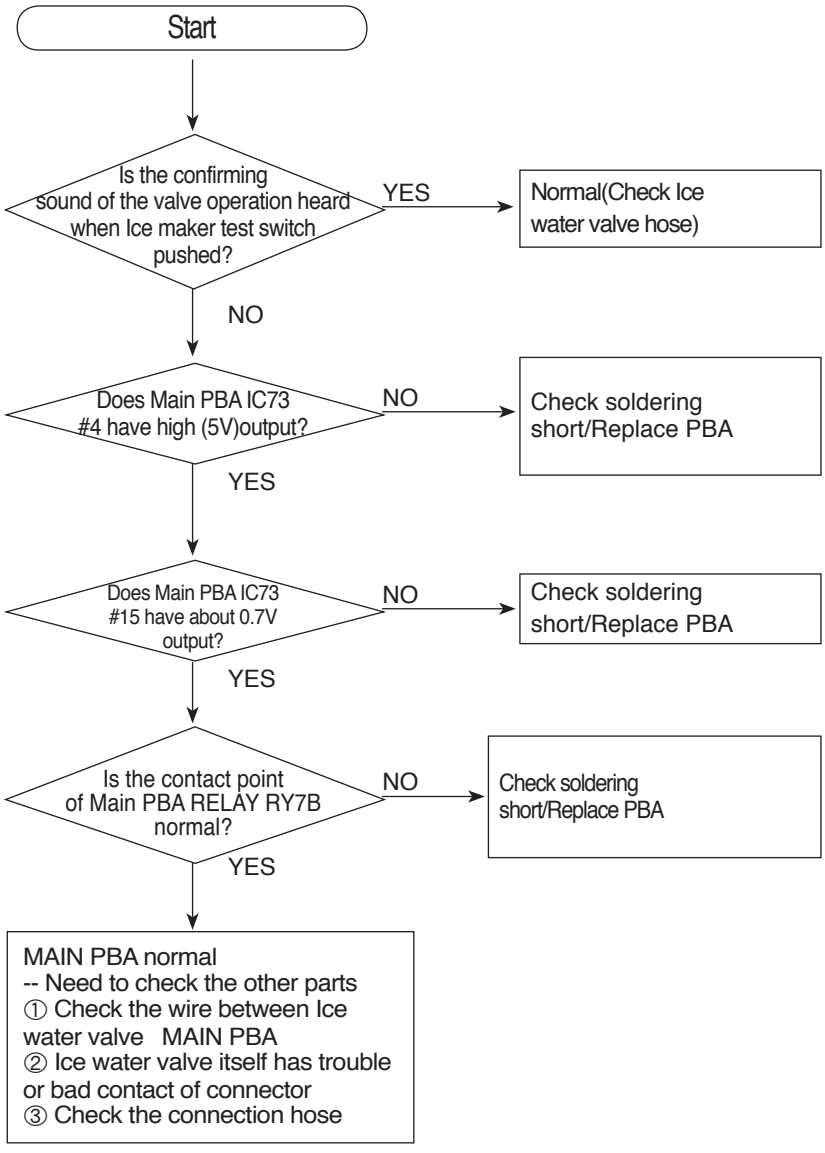


4–19) If Ice Maker does not operate

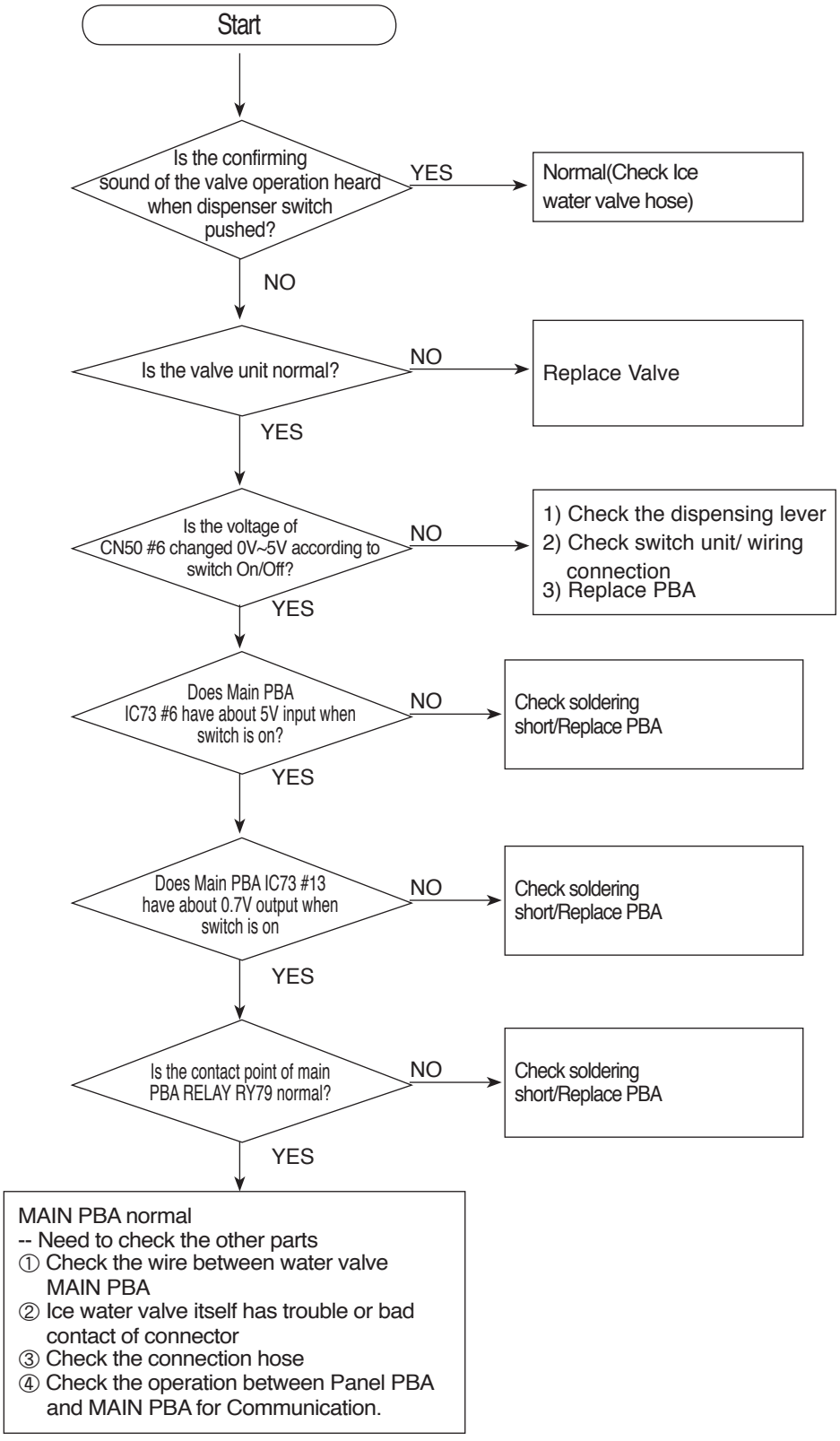
1. Water is automatically supplied to the Ice Maker by temperature & time.
   Ice Maker Dispenses cubed or crushed ice.
2. Power is applied to the one end of wires. Be careful when disassembling and should refer to diagram in any case.
3. Ice Maker operation should be checked after pressing the Ice Maker testing switch.
   (Freezer Ice Maker) It is unable to check when the power is disengaged.
4. We recommend that TWO PEOPLE check the PBA and Ice Maker because they are located at front and rear side each.
5. Be careful! The Ice Maker Heater can cause personal injury like burn.



4-20) If ICE Water is not supplied



4–21) If Water is not supplied



4-22) If Ice Route Motor is not working normally

Caution
1. When replacing the Ice Route Motor, pull out the plug to avoid an electric shock.
2. Be careful! When disassemble the Ice Route Motor, spring can jumped out and may cause personal injury.
3. Motor will rotate continuously when the Motor Switch is not sensed.

Checking Mehod of Cover Ice Route Motor Resistance (Make sure to work after Power Off) The Resistance is variable according to the input voltage.

Start

Does GEARED MOTOR work properly?
- NO → Replace the MOTOR
- YES ↓

Is Cubed or Crushed Ice mode selected on the Display PANEL?
- NO → Select cubed or crushed Ice
- YES ↓

Is the DISPENSER switch selected?
- NO → Select the DISPENSER switch
- YES ↓

Does the wiring at the both side of motor connected properly?
- NO → Check the WIRE
- YES ↓

Is the AC input voltage applied to the both ends of the motor?
- NO → Check the MOTOR/Check any interference on MOTOR rotation
- NO ↓

When the MOTOR rotates. ↑

① Check the voltage between CN72 #1 & CN102 #1 is applied .
② Check the SSR75 SHORT/OPEN of Ice Route Motor control circuit in the MAIN PBA.
③ Check any SHORT/OPEN of wiring connections between PBA CASE and MAIN PBA.

NOTE. <Make sure that the plug is tuned off before you work, Check the Resistance value>

Is the sensing SWITCH connection normal?
- NO → Check/Repair the Housing connector
- YES ↓

Is the switch pressed area normal when motor rotates?
- NO → Check/Repair the Motor Rotation pressing area
- YES ↓

Are the voltage of CN90 #1 & #2 normal?
- NO → Normal
- NO ↓

Operating Condition of Dispenser Open/Close
CN90 - Switch 1,2 Operating

	Close	Open
Ice Route Switch 1 CN30 #12	0V	0V
Ice Route Switch 2 CN30 #13	0V	5V

① Main PBA - Check the wire OPEN/SHORT between the Ice Route Motor Rotation sensin switches.
② Check the Short of Ice Route Motor Control Circuit SSR75 in the MAIN PBA.
③ Replace the MAIN PBA or the Dispenser Cover Motor.

4-23) Diagnostic method according to the trouble symptom(Flow Chart)

DATA1. Temperature table
Resistance value and MICOM port voltage of sensor according to the temperature SENSOR CHIP : based on PX41C

˚C	˚F	Voltage	Resistance	˚C	˚F	Voltage	Resistance	˚C	˚F	Voltage	Resistance
-50	-58	4.694	153319	-5	23	3.107	16419	40	104	1.153	2997
-49	-56.2	4.677	144794	-4	24.8	3.057	15731	41	105.8	1.124	2899
-48	-54.4	4.659	136798	-3	26.6	3.006	15076	42	107.6	1.095	2805
-47	-52.6	4.641	129294	-2	28.4	2.955	14452	43	109.4	1.068	2714
-46	-50.8	4.622	122248	-1	30.2	2.904	13857	44	111.2	1.040	2627
-45	-49	4.602	115631	0	32	2.853	13290	45	113	1.014	2543
-44	-47.2	4.581	109413	1	33.8	2.802	12749	46	114.8	0.988	2462
-43	-45.4	4.560	103569	2	35.6	2.751	12233	47	116.6	0.963	2384
-42	-43.6	4.537	98073	3	37.4	2.700	11741	48	118.4	0.938	2309
-41	-41.8	4.514	92903	4	39.2	2.649	11271	49	120.2	0.914	2237
-40	-40	4.490	88037	5	41	2.599	10823	50	122	0.891	2167
-39	-38.2	4.465	83456	6	42.8	2.548	10395	51	123.8	0.868	2100
-38	-36.4	4.439	79142	7	44.6	2.498	9986	52	125.6	0.846	2036
-37	-34.6	4.412	75077	8	46.4	2.449	9596	53	127.4	0.824	1973
-36	-32.8	4.385	71246	9	48.2	2.399	9223	54	129.2	0.803	1913
-35	-31	4.356	67634	10	50	2.350	8867	55	131	0.783	1855
-34	-29.2	4.326	64227	11	51.8	2.301	8526	56	132.8	0.762	1799
-33	-27.4	4.296	61012	12	53.6	2.253	8200	57	134.6	0.743	1745
-32	-25.6	4.264	57977	13	55.4	2.205	7888	58	136.4	0.724	1693
-31	-23.8	4.232	55112	14	57.2	2.158	7590	59	138.2	0.706	1642
-30	-22	4.199	52406	15	59	2.111	7305	60	140	0.688	1594
-29	-20.2	4.165	49848	16	60.8	2.064	7032	61	141.8	0.670	1547
-28	-18.4	4.129	47431	17	62.6	2.019	6771	62	143.6	0.653	1502
-27	-16.6	4.093	45146	18	64.4	1.974	6521	63	145.4	0.636	1458
-26	-14.8	4.056	42984	19	66.2	1.929	6281	64	147.2	0.620	1416
-25	-13	4.018	40938	20	68	1.885	6052	65	149	0.604	1375
-24	-11.2	3.980	39002	21	69.8	1.842	5832	66	150.8	0.589	1335
-23	-9.4	3.940	37169	22	71.6	1.799	5621	67	152.6	0.574	1297
-22	-7.6	3.899	35433	23	73.4	1.757	5419	68	154.4	0.560	1260
-21	-5.8	3.858	33788	24	75.2	1.716	5225	69	156.2	0.546	1225
-20	-4	3.816	32230	25	77	1.675	5039	70	158	0.532	1190
-19	-2.2	3.773	30752	26	78.8	1.636	4861	71	159.8	0.519	1157
-18	-0.4	3.729	29350	27	80.6	1.596	4690	72	161.6	0.506	1125
-17	1.4	3.685	28021	28	82.4	1.558	4526	73	163.4	0.493	1093
-16	3.2	3.640	26760	29	84.2	1.520	4369	74	165.2	0.481	1063
-15	5	3.594	25562	30	86	1.483	4218	75	167	0.469	1034
-14	6.8	3.548	24425	31	87.8	1.447	4072	76	168.8	0.457	1006
-13	8.6	3.501	23345	32	89.6	1.412	3933	77	170.6	0.446	978
-12	10.4	3.453	22320	33	91.4	1.377	3799	78	172.4	0.435	952
-11	12.2	3.405	21345	34	93.2	1.343	3670	79	174.2	0.424	926
-10	14	3.356	20418	35	95	1.309	3547	80	176	0.414	902
-9	15.8	3.307	19537	36	96.8	1.277	3428	81	177.8	0.404	877
-8	17.6	3.258	18698	37	98.6	1.253	3344	82	179.6	0.394	854
-7	19.4	3.208	17901	38	100.4	1.213	3204	83	181.4	0.384	832
-6	21.2	3.158	17142	39	102.2	1.183	3098	84	183.2	0.375	810

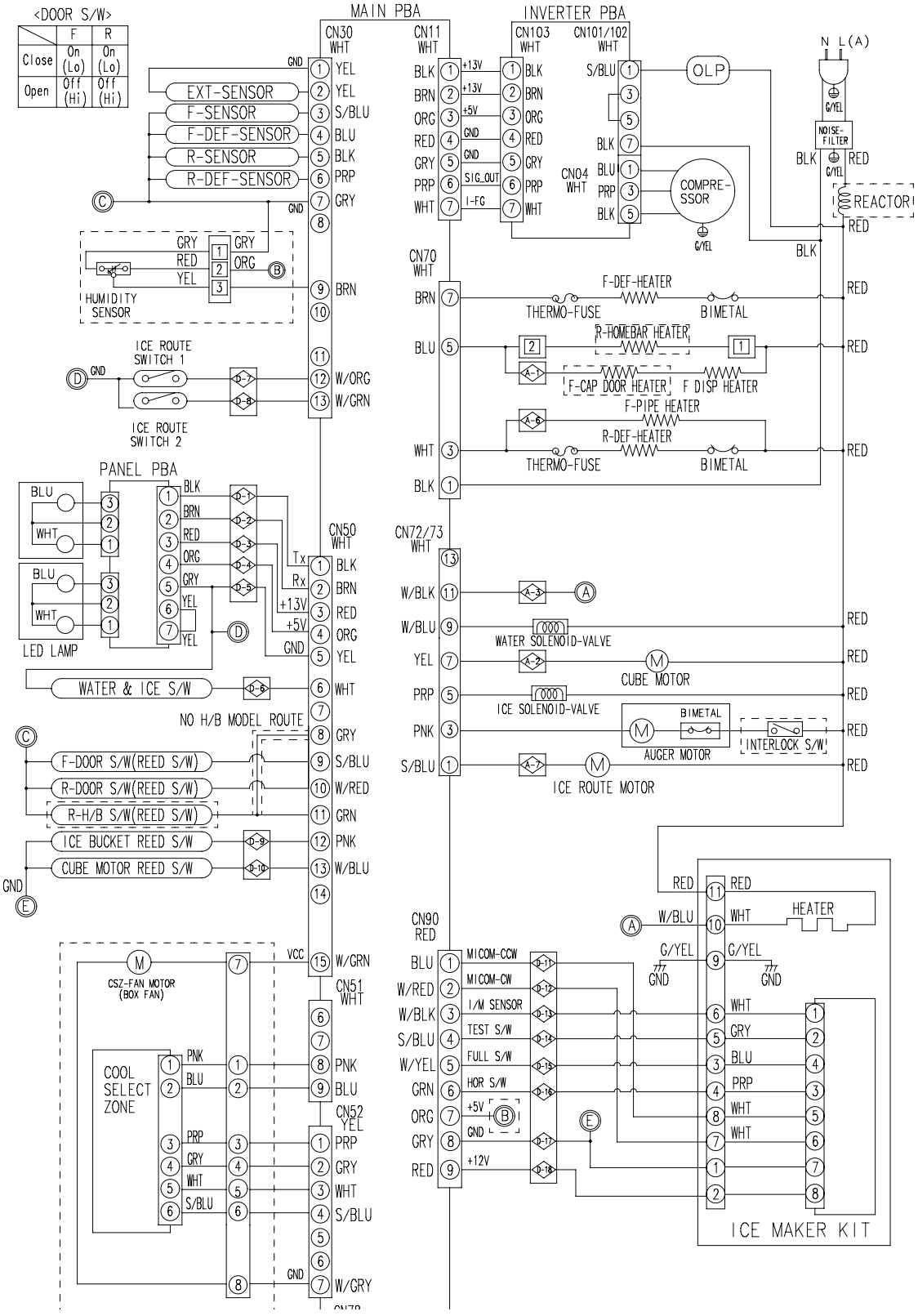
4–24) LED blinking frequency depending on protecting functions

If Failure Condition is detected during compressor is operating, immediately stop Compressor operating and stand
by 5 minutes. During this 5 minutes. RPM command signal is not available. it means It means, even if available RPM command signal is applied to the compressor, it does not work and keep standing by.

Blinking time is 1 second and dwell time is 2 seconds.

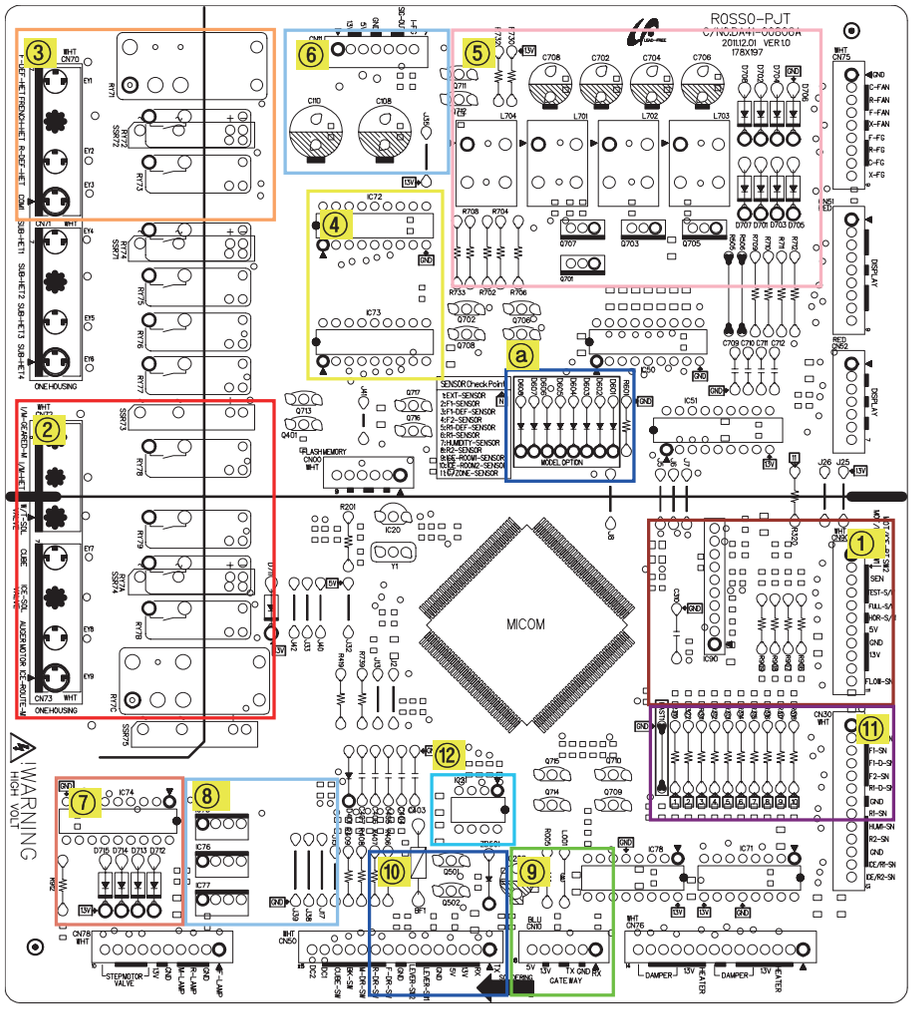
LED Blinking Frequency	Protecting Functions	Remarks
	Normal Operation	N/A
	Starting Failure	1. Check the COMP terminals short(U,V,W) 2. Check IPM Pins short of Inverter PBA 3. Check IPM operating Voltage(under DC 13.5V) 4. Other cases, check the COMP, cycle, etc.
	SPM Fault	
	Abnormal Current Detection	1. Check COMP wire connections(U,V,W) 2. Check PCB Bottom side soldering state 3. Other cases, check the COMP, cycle, etc.
	Motor Locked / Over RPM	1. Check PCB Bottom side soldering state. 2. Check Input voltage oscillation 3. Other cases, check the COMP, cycle, etc.
	Under Voltage	1. Check input voltage under AC 53V(Input Power AC110~127V) or AC 106V(Input Power AC 220 ~ 240V) 2. Check PCB Bottom side soldering state.
	Over Voltage	1. Check input voltage over AC 155V(Input Power AC110~127V) or AC 310V(Input Power AC 220 ~ 240V) 2. Check PCB Bottom side soldering state.

5 . WIRING DIAGRAM



6. PCB DIAGRAM

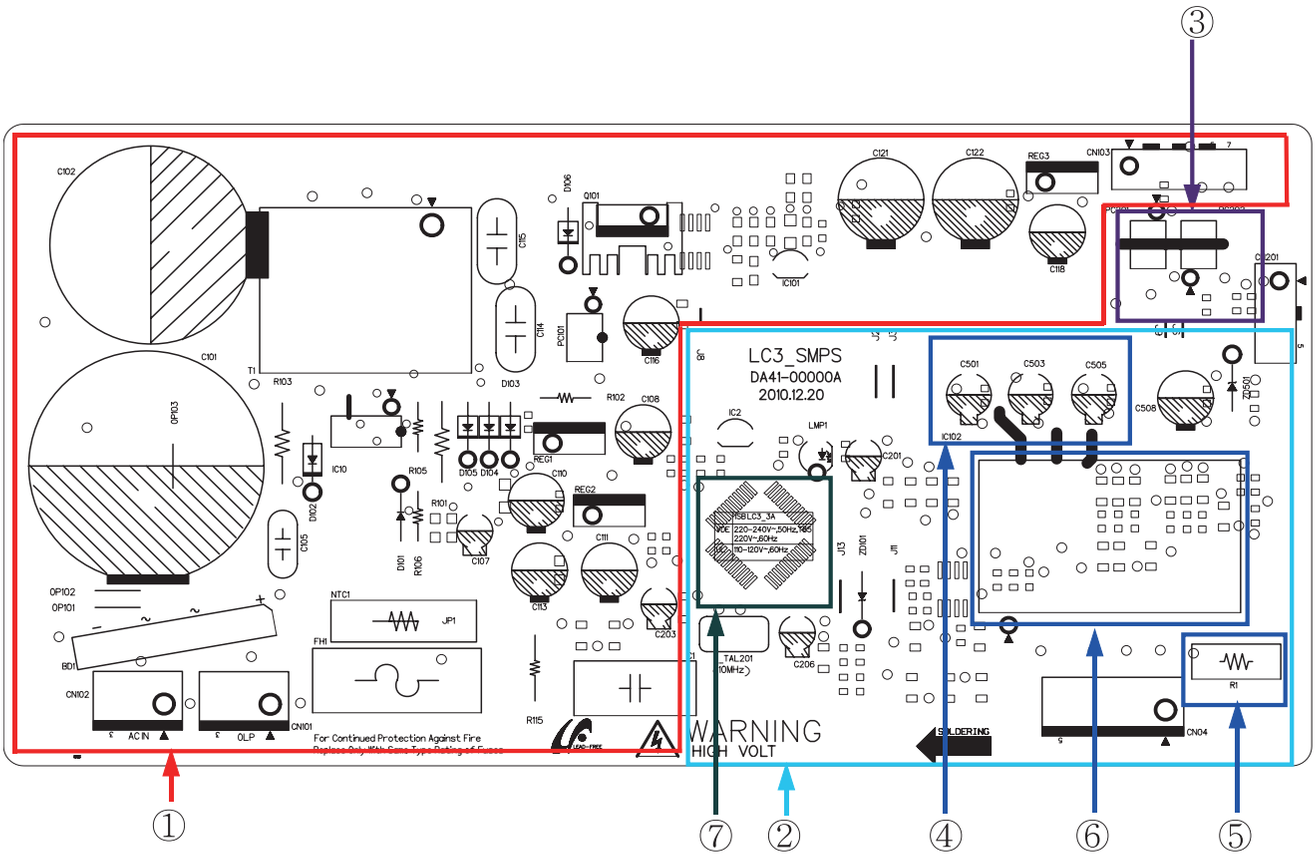
6-1) PART ARRANGEMENT (Main PBA)



1. SMPS Circuit : Not used.
2. Ice Maker Circuit : Receiving the data of sensor, Hall S/W, Ice Route Micro S/W
3. Ice Maker Control Circuit : Controlling AC Load like motor, solenoid, heater related to ice making
4. Heater Control : Relays for F/R-def-heater, R-H/B-heater, Pipe-heater, Dispenser-heater F/R-cap-heater
5. Driver IC : Using MICOM signal to control relays.
6. BLDC Fan Control circuit : Supplying the power to the fan motor using PWM
7. Cool Select Zone control circuit : Controlling Cool Select Zone PBA.
8. Inverter Communication circuit : Sending operating RPM signal & receiving error feedback.
9. Step Valve control circuit : using motor driver IC to control step valve motor
10. Lamp control circuit : Controlling F&R room lamp
11. PLC circuit : Not applied
12. Display communication circuit (UART) and Dispenser lever & H/B switch signal
13. Cool Select Zone control circuit
14. Sensor & Door Switch circuit : sensing several sensors & door switches signal.
15. EEPROM : memory for data saving.

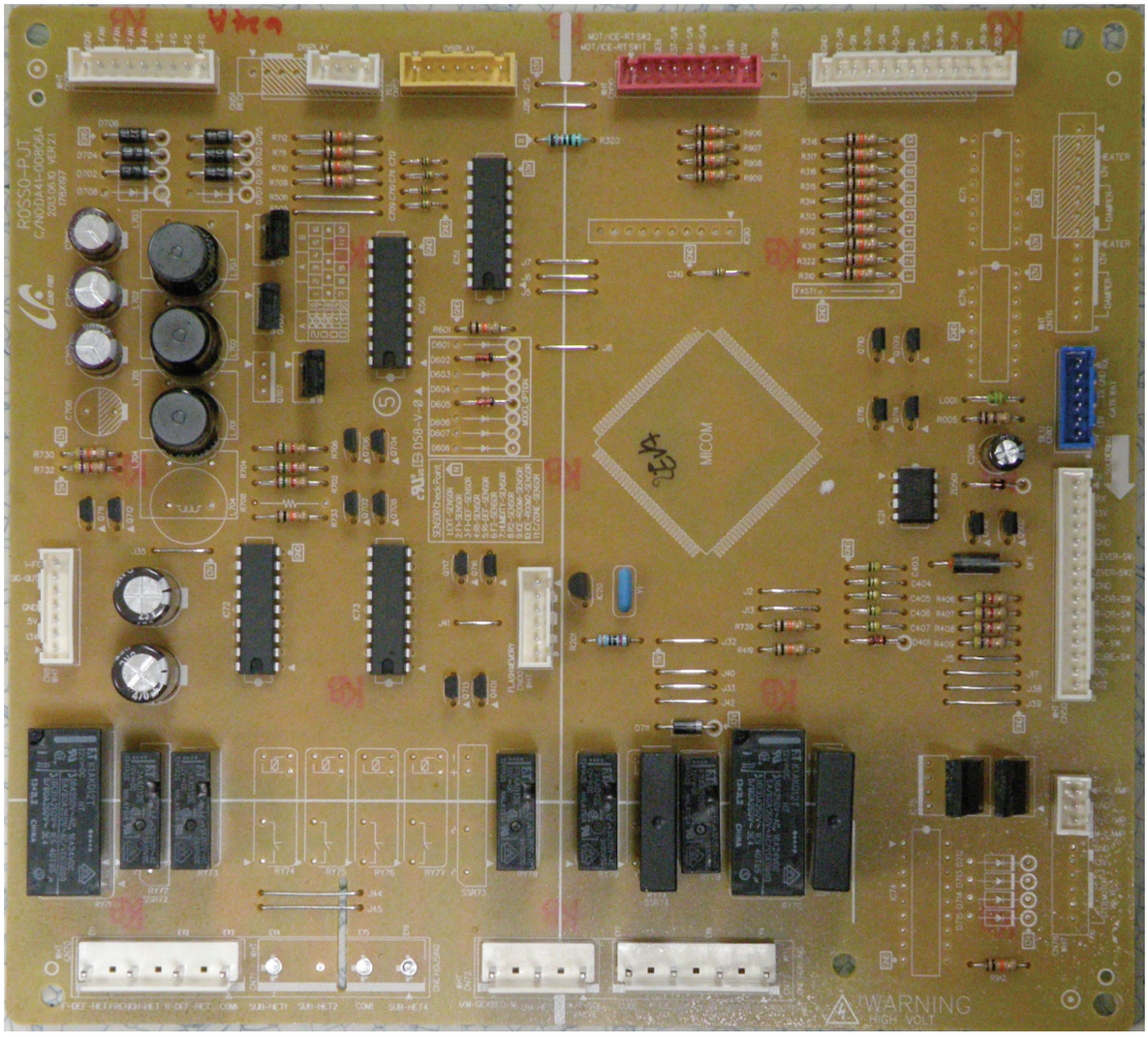
A. Diode option setting part

6–2) Connector Layout & Descriptions of Inverter Controller Board



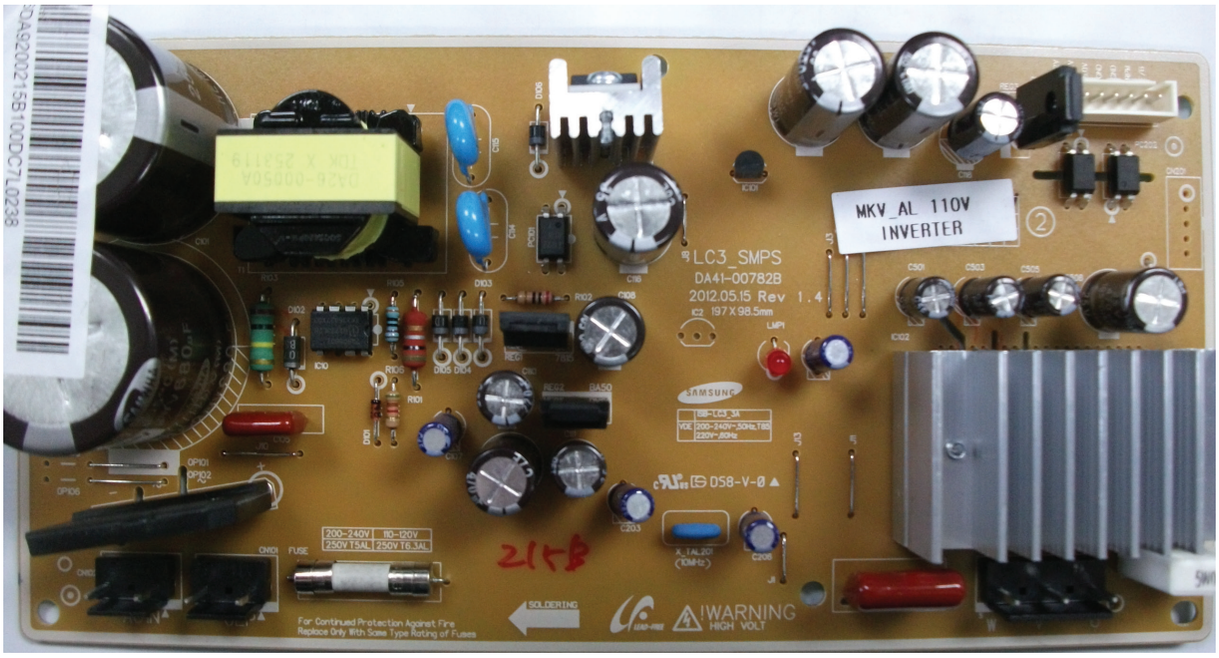
1. PCB Power Supply : From the SMPS circuit, it supplies 15V and 5V for the Main PBA control and supplies15V and 5V to the Inverter circuit for the Compressor control.
2. Inverter Control Circuit : Fridge Compressor Control Circuit.
3. COMP Driving / Feedback CircuitIt receives the COMP operation signals from the Main PBA and feedbacks the inverter errors to the Main PBA.
4. BOOTSTRAP Charger : It is an independent power circuit for the driving of the IMP High-Phase IGBT.
5. Current Pickup Circuit : It pickups the currents taken by the Shunt resistance and does the PWM DUTY control.
6. IPM (FNE41060)
7. Micom (MN103SFC2D)

6-3) CONNECTOR ARRANGEMENT (Main Board)



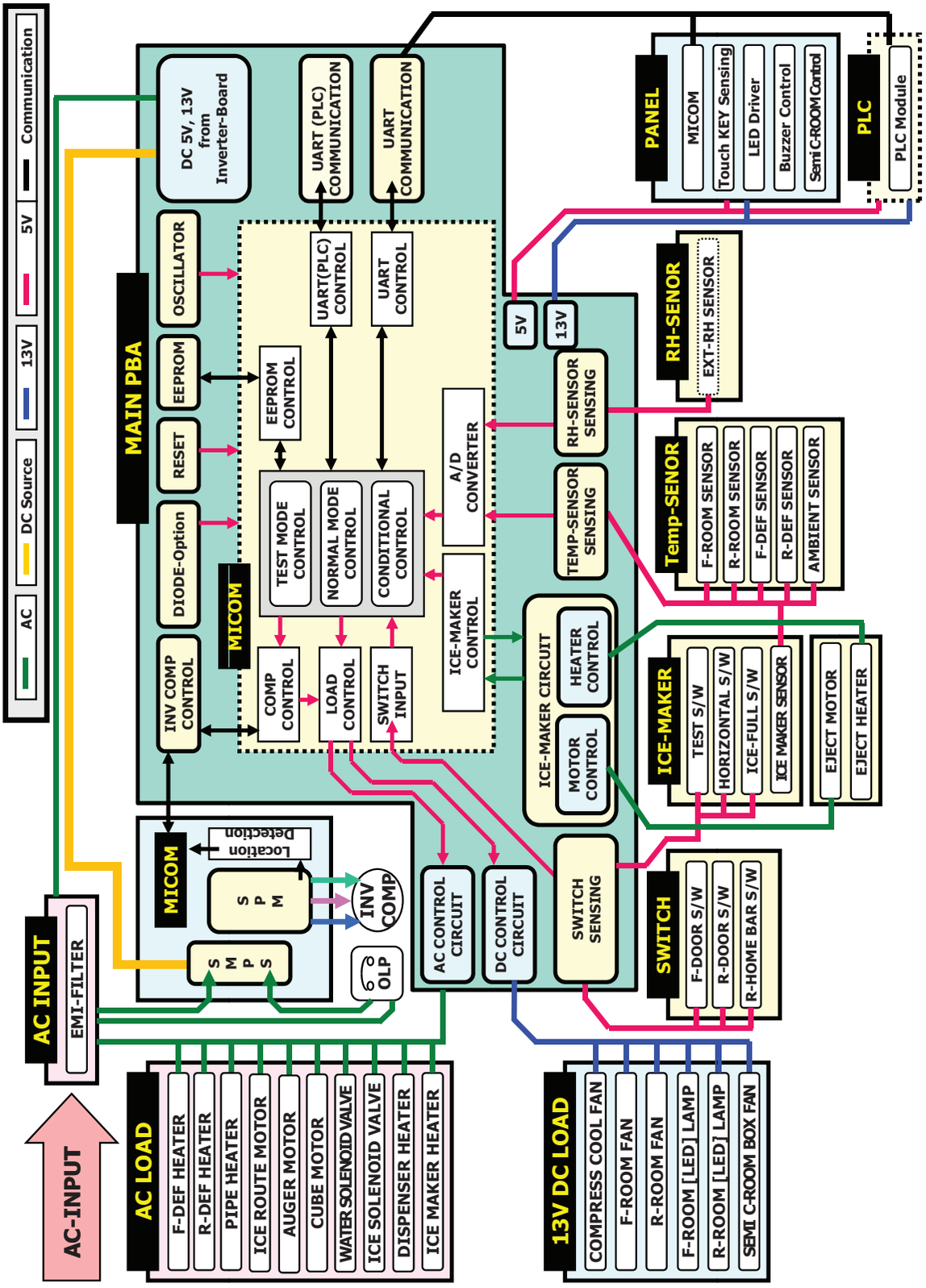
6-4) Connector Layout & Description (Inverter comp control Board)

Used for Inverter Model

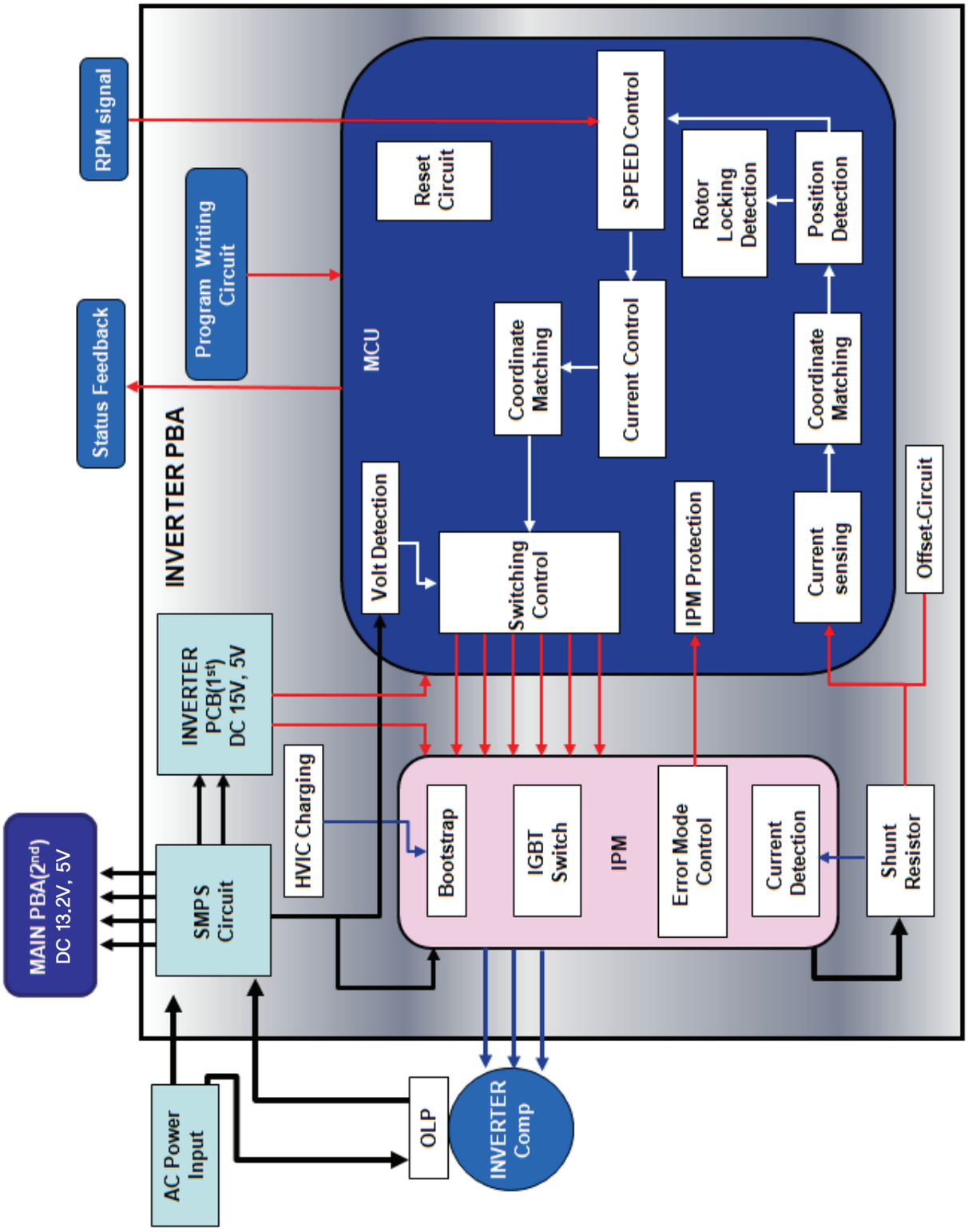


7. SCHEMATIC DIAGRAM

7-1) Block Diagram



7-2) Block Diagram (INVERTER PBA)



8. REFERENCE INFORMATION

8–1) Q&A

Problem	Possible Causes	What To Do
The refrigerator does not work sufficiently or at all	• Disconnected power plug	• Check that the power plug is properly connected.
	• Is the temperature control on the display panel set to the correct temperature?	• Try setting it to a lower temperature.
	• Is the refrigerator in direct sunlight or located near a heat source?	• Move the refrigerator to the proper location.
	• Is the back of the refrigerator too close to the wall?	
The food in the refrigerator is frozen	• Is the temperature control on the display panel set to the correct temperature?	• Try setting it to a warmer temperature.
	• Is the temperature in the room too low?	
	• Did you store the food with a high water content in the coldest part of the refrigerator.	
Unusual noises or sounds are heard		• Check that the floor is levelled and stable.
	• Is the back of the refrigerator too near to the wall?	• Move the refrigerator to the proper location.
	• Was anything dropped behind or under the refrigerator?	• Remove the foreign thing.
	• A “ticking” sound may be heard from inside the refrigerator. This is normal and occurs because various accessories contract or expand.	
The front corners and sides of the cabinet are hot; condensation occurs	• HOT-PIPE is installed in the front corners of refrigerator. That makes refrigerator’s temperature low quickly and save the power consumption.	• Normal state
	• Condensation can occur when you leave the door open for a long time.	• Normal state
Ice is not dispensed	• Did you stop the ice making function?	• See the control panel.
	• Is there any ice in the storage unit?	• See the ice container.
	• Is the water pipe connected and the shut-off valve open?	• See the valve.
	• Is the freezer temperature too warm?	• Set the temperature lower.
	• Did you wait for 12 hours after installation of the water supply line before making ice?	
You can hear water bubbling in the refrigerator	• The bubbling comes from the refrigerant circulating in the refrigerator and is normal.	• Normal state
There is a bad smell in the refrigerator	• Wrap strong smelling food so that it is airtight. Throw away any rotten food.	
Frost forms on the wall of the freezer		• Allow sufficient space between stored food for efficient air circulation.
	• Is the air vent blocked?	
	• Is the door closed properly?	
No water is supplied	• Is the water pipe connected and the shut-off valve open?	
	• Is the water supply pipe crushed?	
	• Is the water tank frozen because the refrigerator temperature is too low? Select a warmer setting on the display panel.	

Problem	Possible Causes	What To Do
Small or hollow cubes	Water filter clogged.	• Replace filter cartridge with new cartridge or with plug.
Slow ice cube freezing	Door left open.	• Check to see if package is holding door open.
	Temperature control not set cold enough.	• See about the controls.
Orange glow in the freezer	Defrost heater is on.	• This is normal.
Cube dispenser does not work(on some models)	Icemaker turned off or water supply turned off.	• Turn on icemaker or water supply.
	Ice cubes are frozen to icemaker feeler arm.	• Remove cubes and move the feeler arm to the ON position.
	Irregular ice clumps in storage container.	• Break up with fingertip pressure and discard remaining clumps. • Freezer may be too warm. Adjust the freezer control to a colder setting, one position at a time, until clumps do not form.
	Dispenser is LOCKED.	• Press and hold the CHILD LOCK for 3 seconds.
Water has poor taste/odor (on some models) Water in first glass is warm (on some models)	Water dispenser has not been used for a long time.	• Dispense water until all water in system is replenished.
	Normal when refrigerator is first installed.	• Wait 24 hours for the refrigerator to completely cool down.
	Water dispenser has not been used for a long time.	• Dispense water until all water in system is replenished.
	Water system has been drained.	• Allow several hours for replenished supply to chill.
Water dispenser does not work(on some models)	Water supply line turned off or not connected.	• See Installing the water line.
	Water filter clogged.	• Replace filter cartridge or remove filter and install plug.
	Air may be trapped in the water system.	• Press the dispenser arm for at least two minutes.
	Dispenser is LOCKED.	• Press and hold the CHILD LOCK pad for 3 seconds.
Water spurting from dispenser (on some models) Water is not dispensed (on some models) but icemaker is working	Newly-installed filter cartridge.	• Run water from the dispenser for 3 minutes (about one and a half gallons).
	Water in reservoir is frozen.	• Call for service.
	Refrigerator control setting is too cold.	• Set to a warmer setting.
	Ice cubes stuck in icemaker. (Green power Lighting on icemaker blinking).	• Turn off the icemaker, remove cubes, and turn the icemaker back on.
Water on kitchen floor or on bottom of freezer	Drain in the bottom of the freezer clogged.	• See Care and cleaning. • Check the lock of filter.
	Cubes jammed in chute.	• Poke ice through with a wooden spoon.
No water or ice cube production	Supply line or shutoff valve is clogged.	• Call a plumber.
	Water filter clogged.	• Replace filter cartridge or remove filter and install plug.
	Dispenser is LOCKED.	• Press and hold the CHILD LOCK pad for 3 seconds.